

FIG. 1A  
PRIOR ART

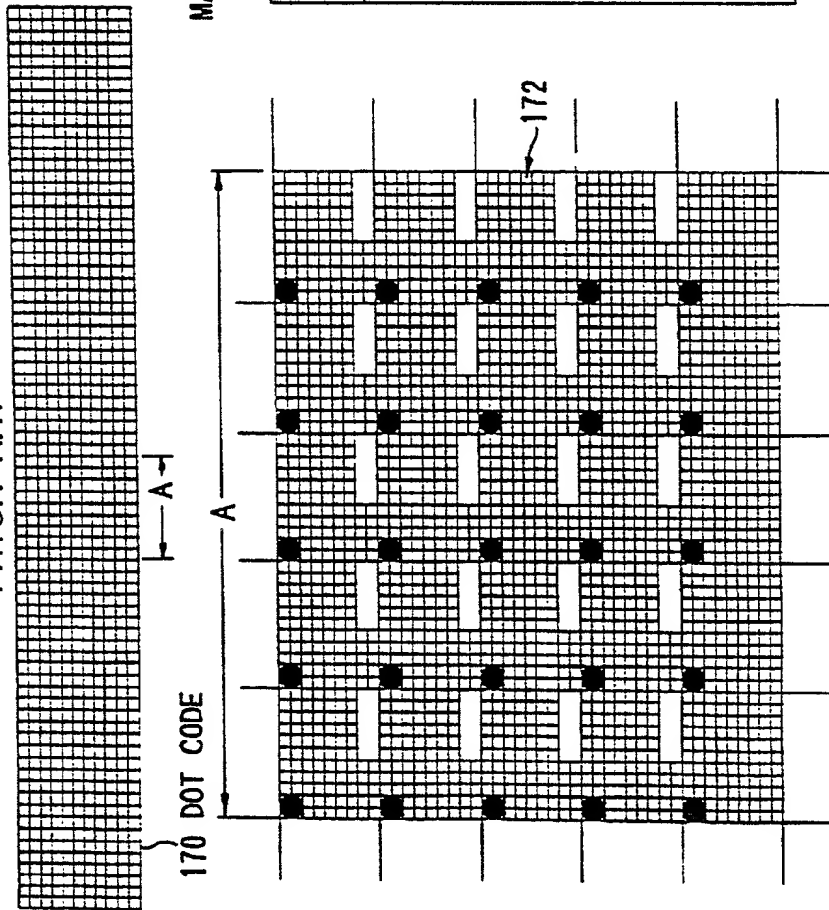


FIG. 1B  
PRIOR ART

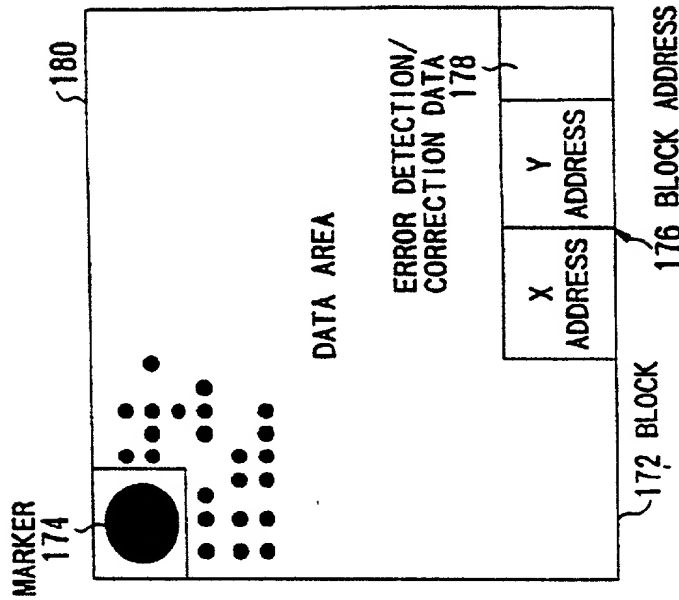


FIG. 1C  
PRIOR ART

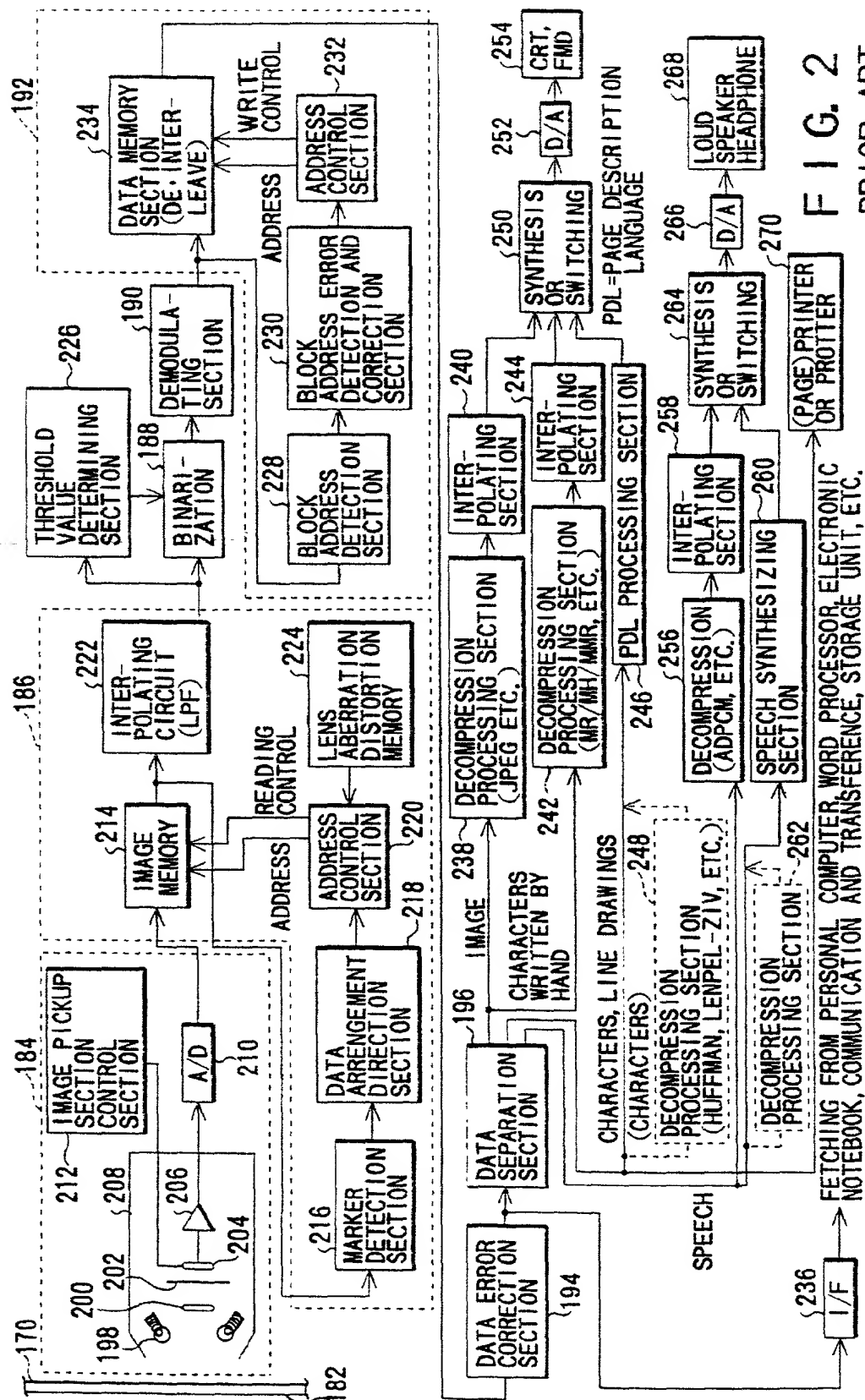


FIG. 2  
PRIOR ART

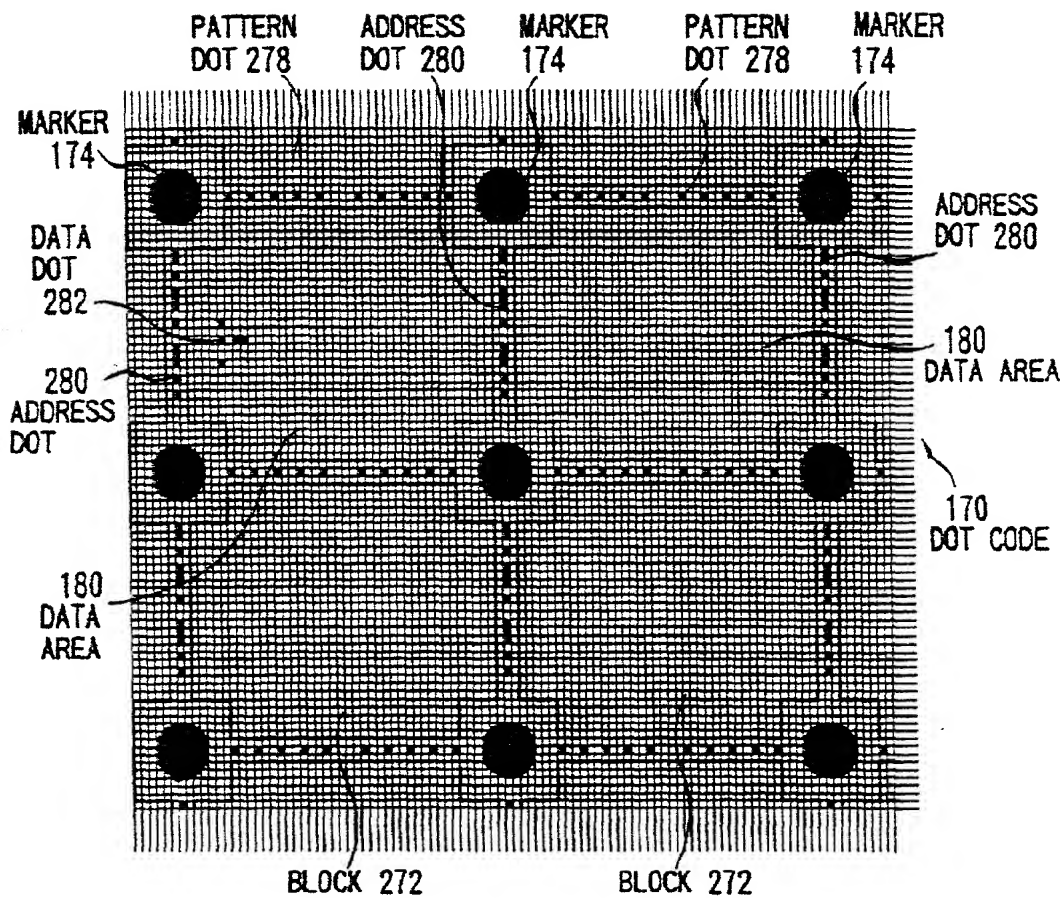


FIG. 3

PRIOR ART

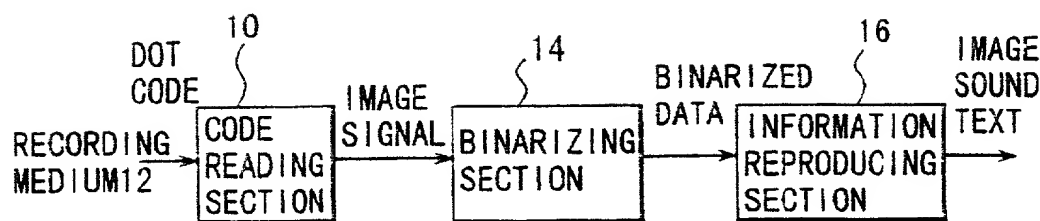


FIG. 4A

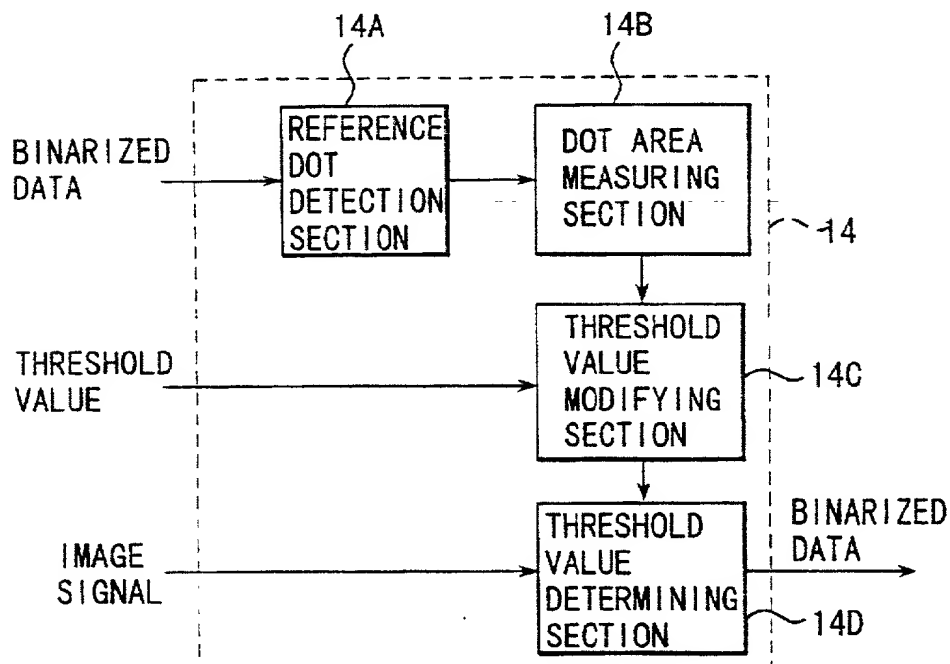


FIG. 4B

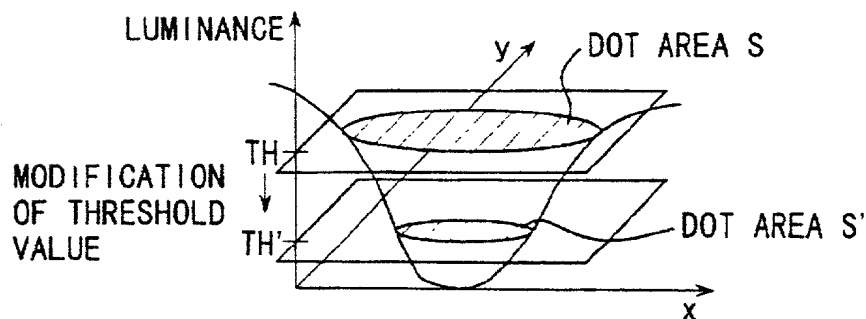


FIG. 5

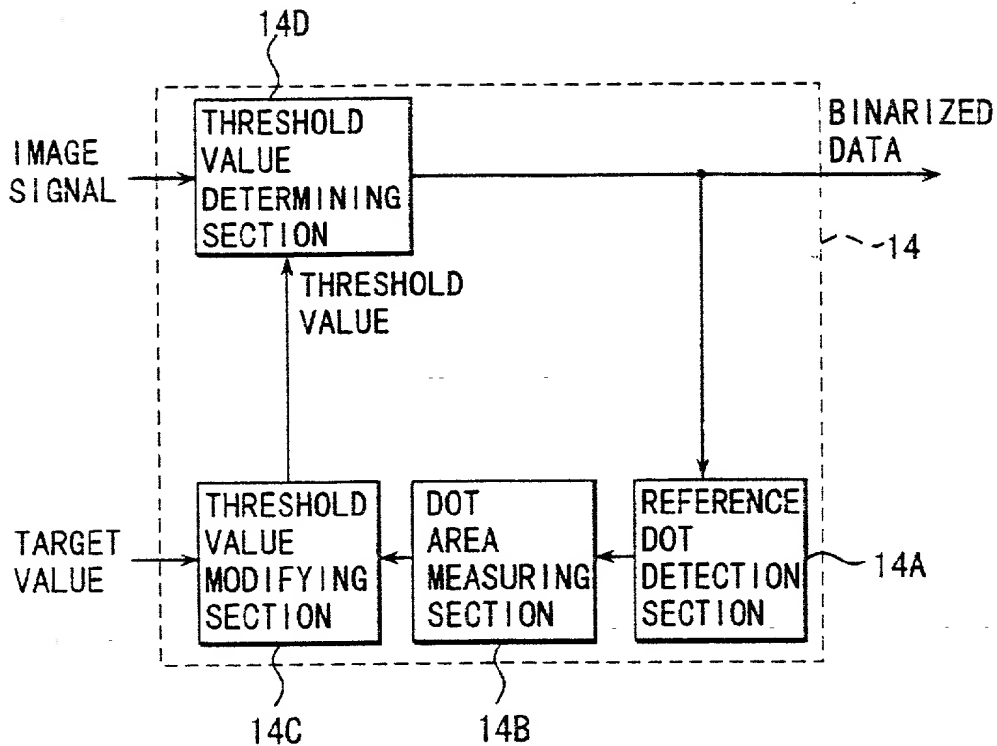


FIG. 6A

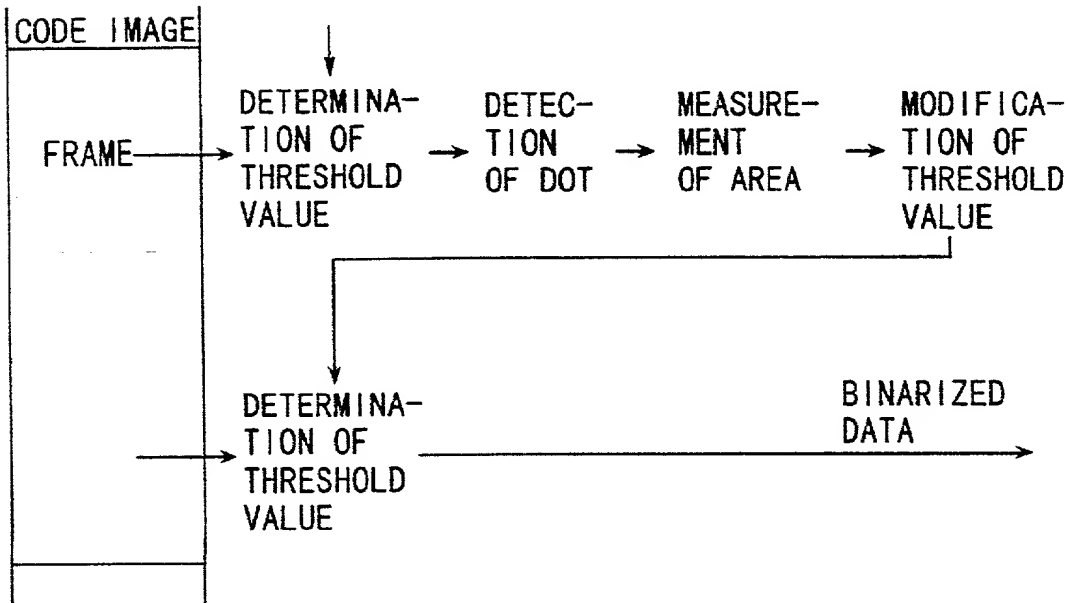


FIG. 6B

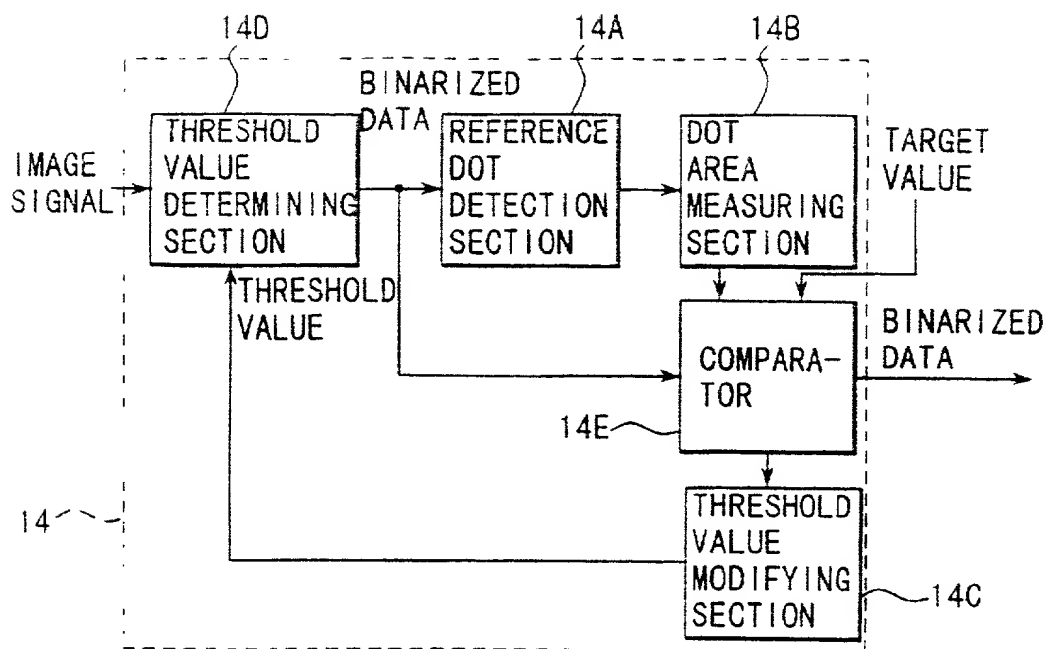


FIG. 7

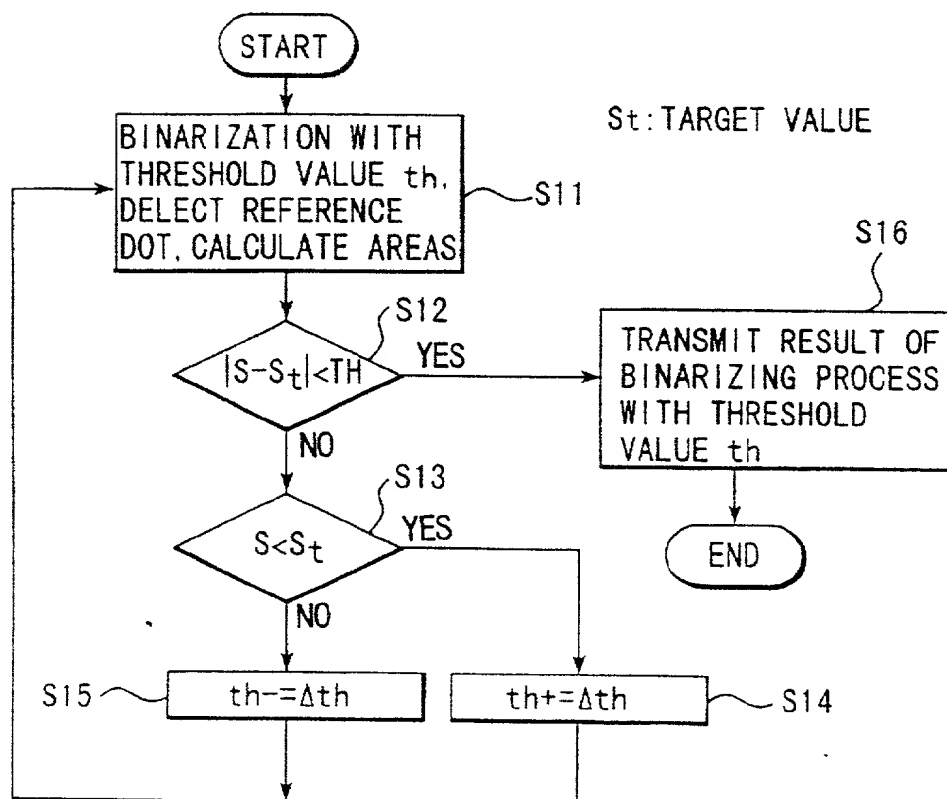


FIG. 8

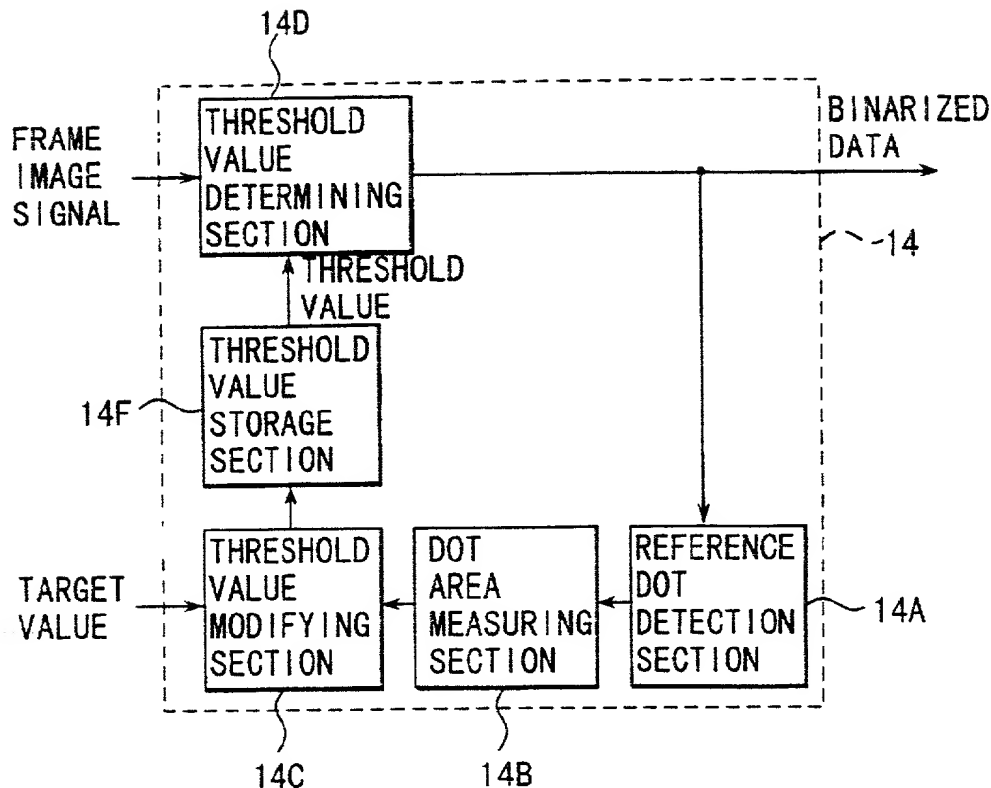


FIG. 9A

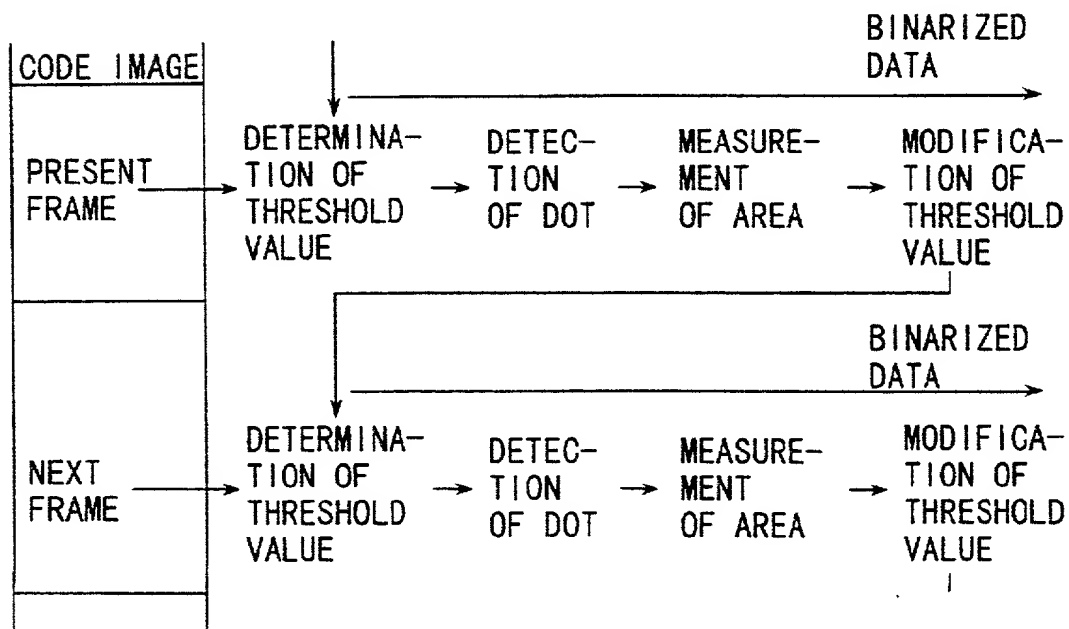


FIG. 9B

FIG. 10A

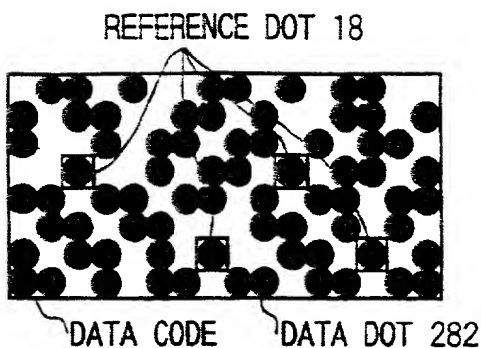


FIG. 10B

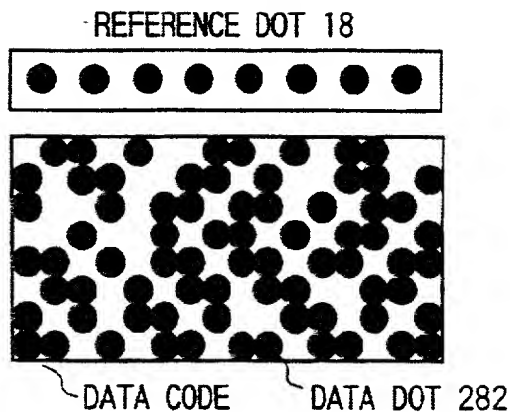


FIG. 11A

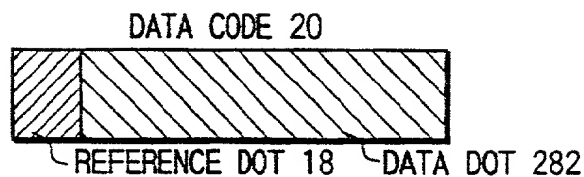


FIG. 11B

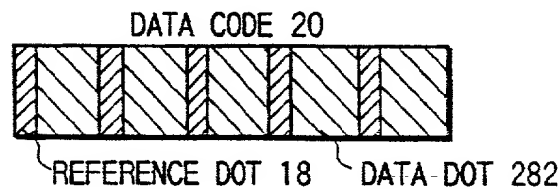
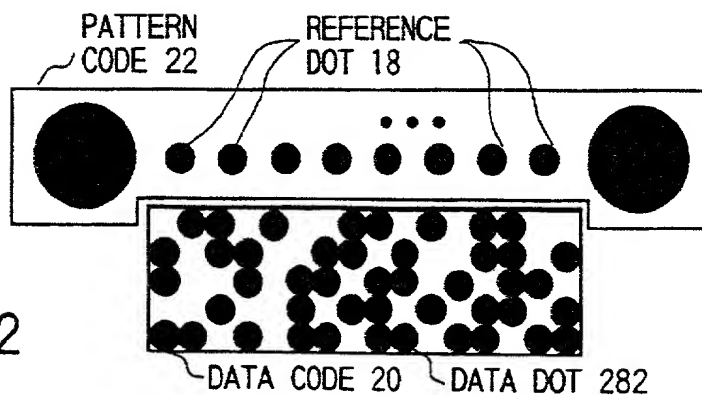


FIG. 12





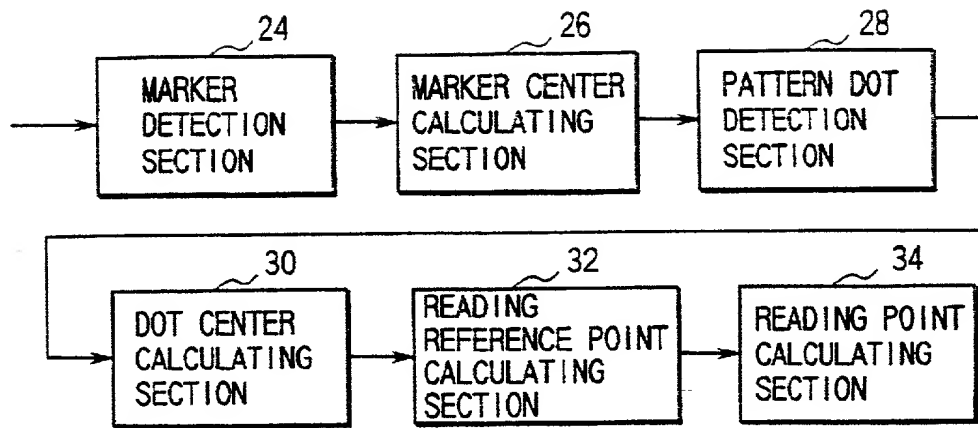


FIG. 13

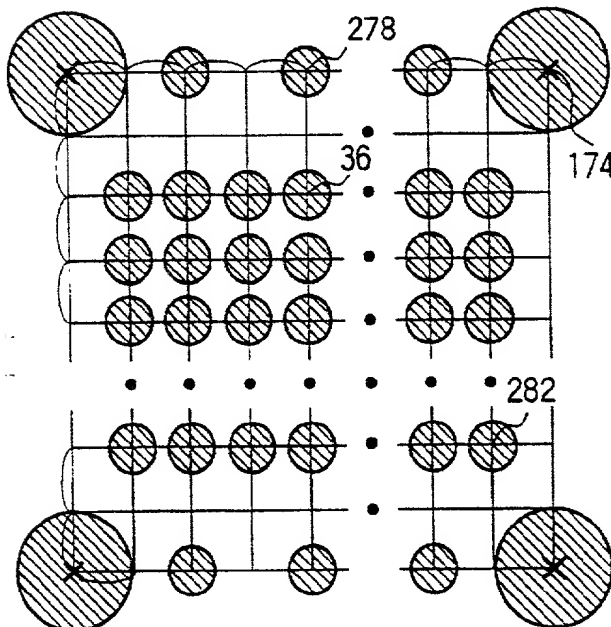


FIG. 14

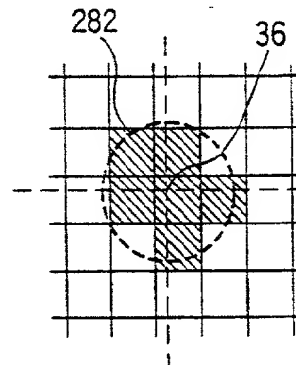
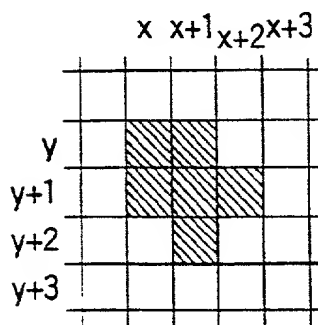


FIG. 15



BLACK PIXEL:  $P_1(x, y), P_2(x+1, y), P_3(x, y+1),$   
 $P_4(x+1, y+1), P_5(x+2, y+1),$   
 $P_6(x+1, y+2)$

AREA (=TOTAL SUM OF BLACK PIXELS): 6

CENTROID:  

$$C = \frac{1}{6} \sum_{n=1}^6 P_n = \left( x + \frac{5}{6}, y + \frac{5}{6} \right)$$

FIG. 16

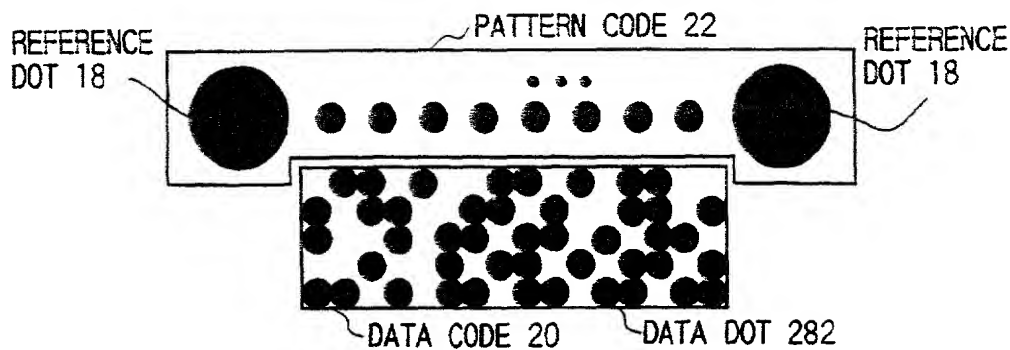


FIG. 17

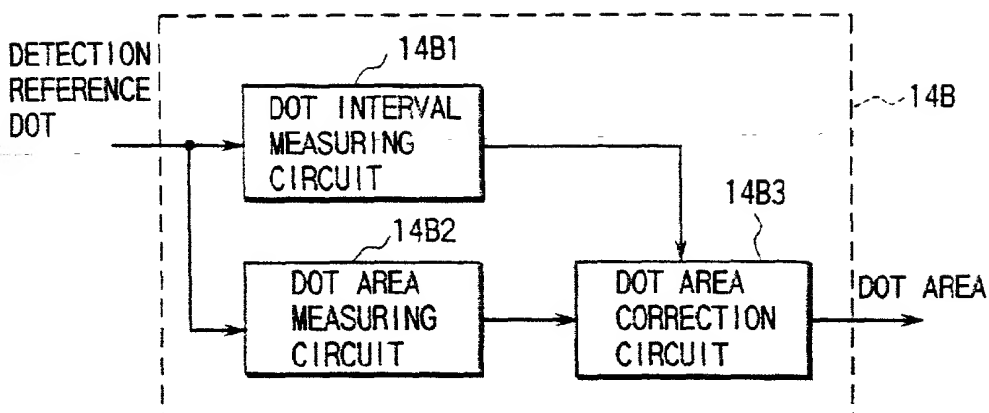
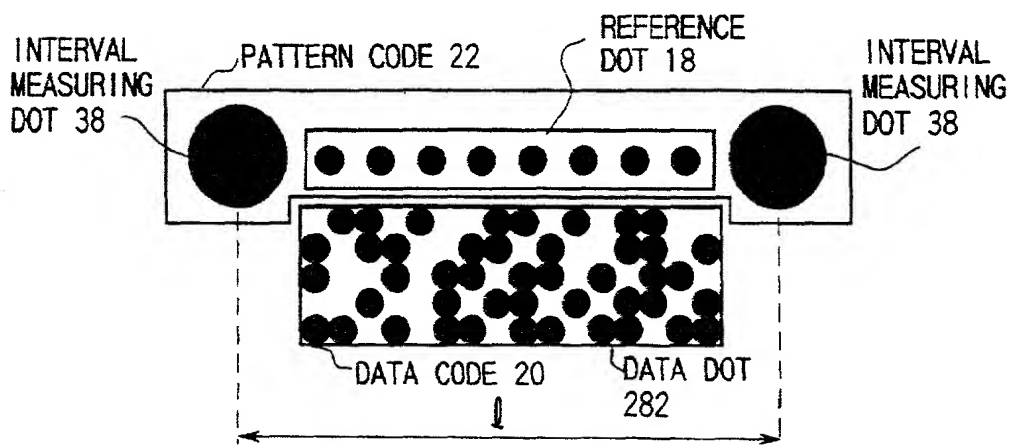


FIG. 18



$$S' = \left(\frac{L}{L}\right)^2 S$$

S: AREA BEFORE CORRECTION L: DOT INTERVAL

S': AREA AFTER CORRECTION L: REFERENCE DOT INTERVAL

FIG. 19

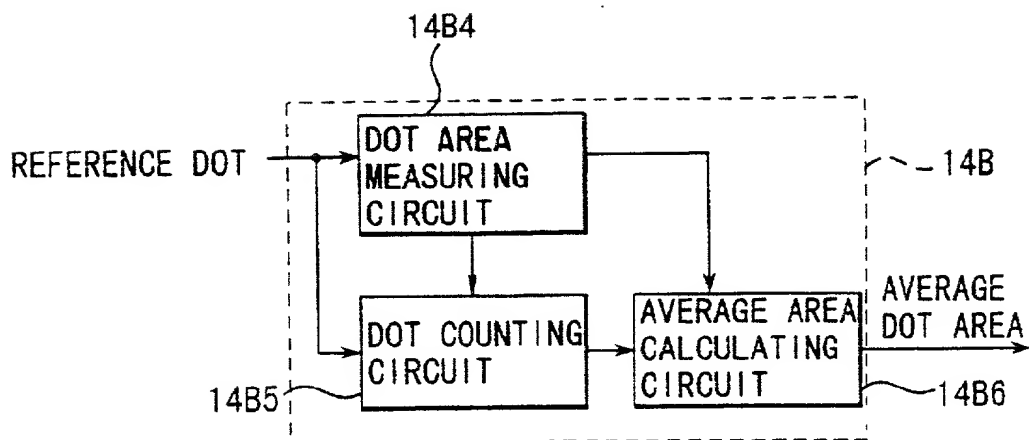


FIG. 20

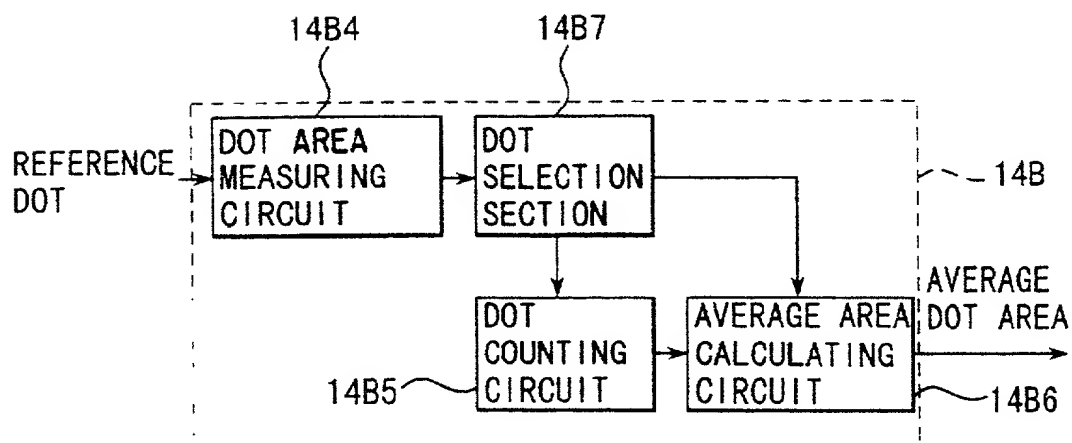


FIG. 21

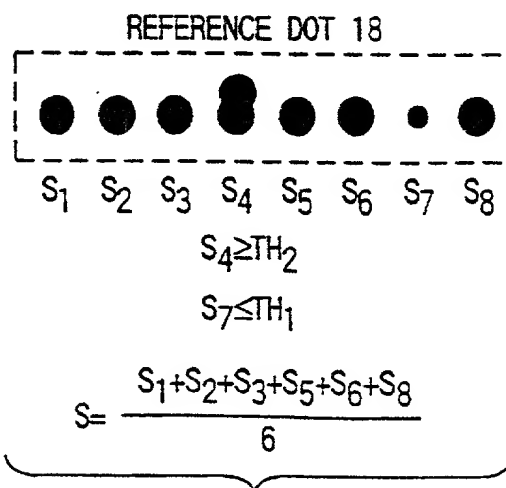
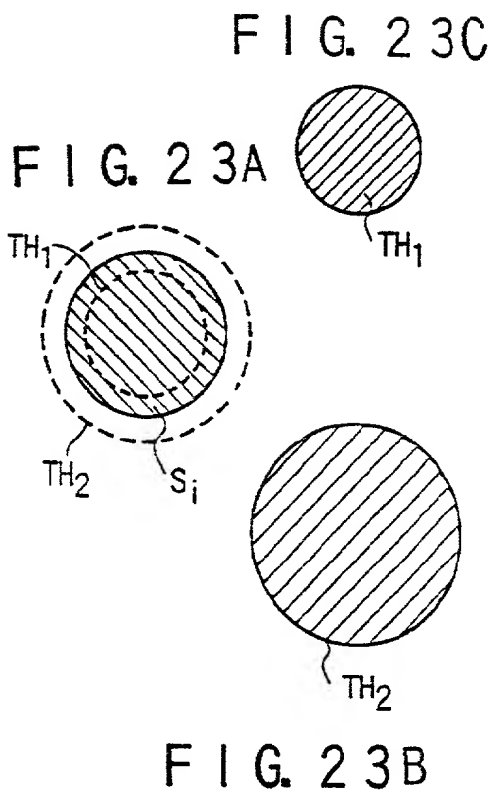
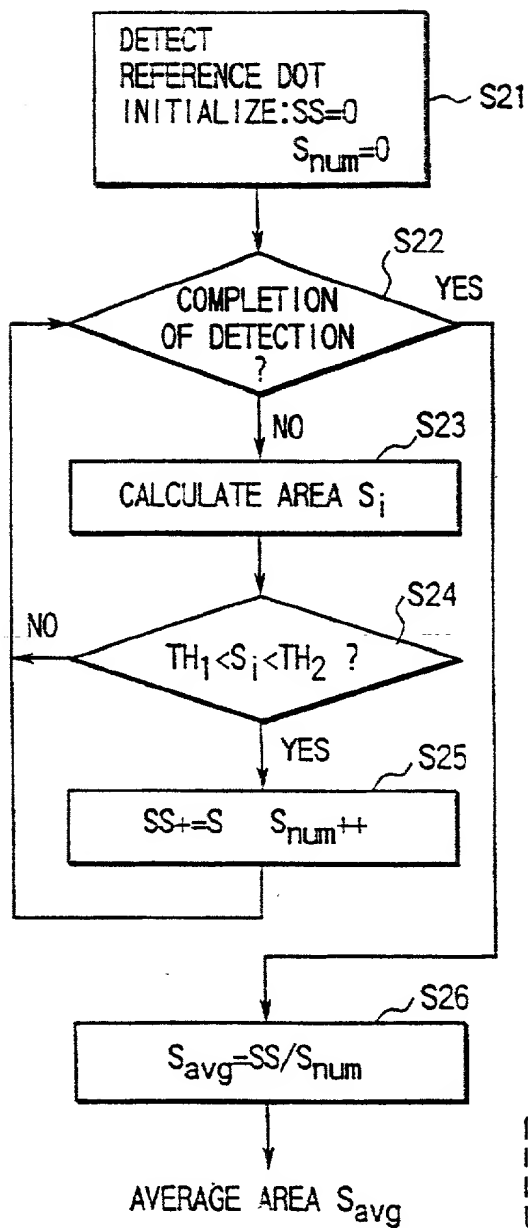


FIG. 24

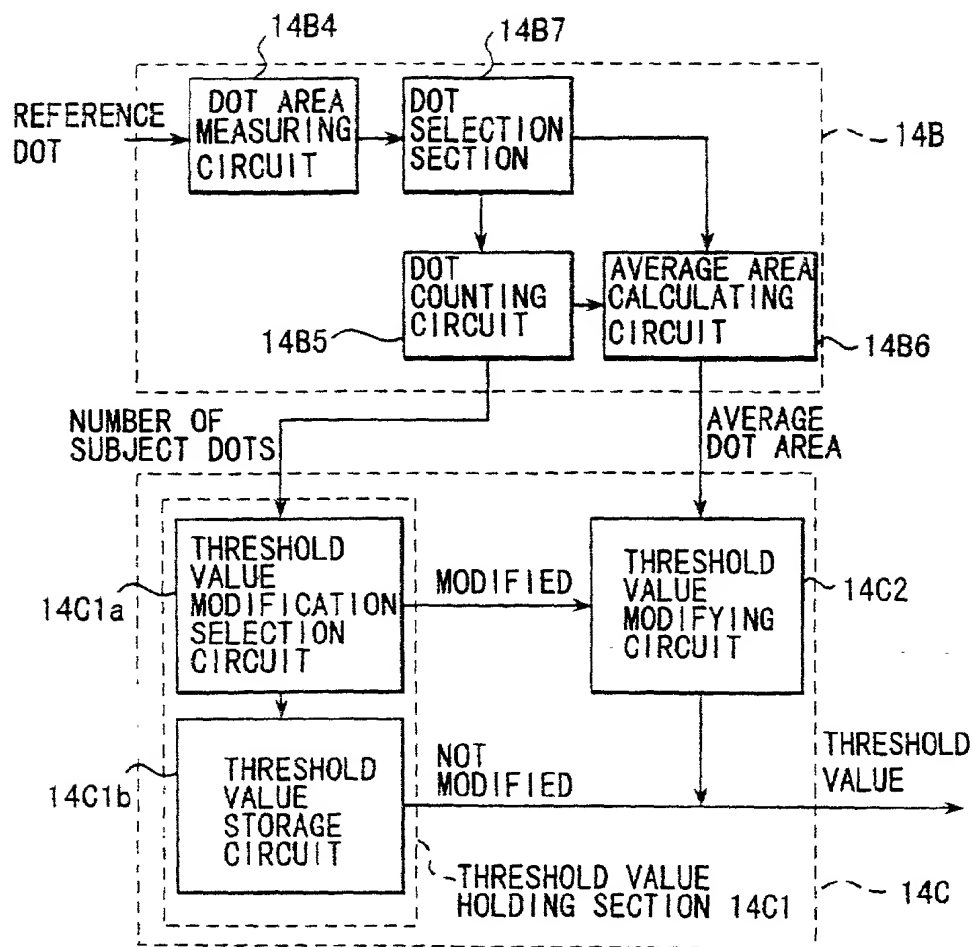


FIG. 25

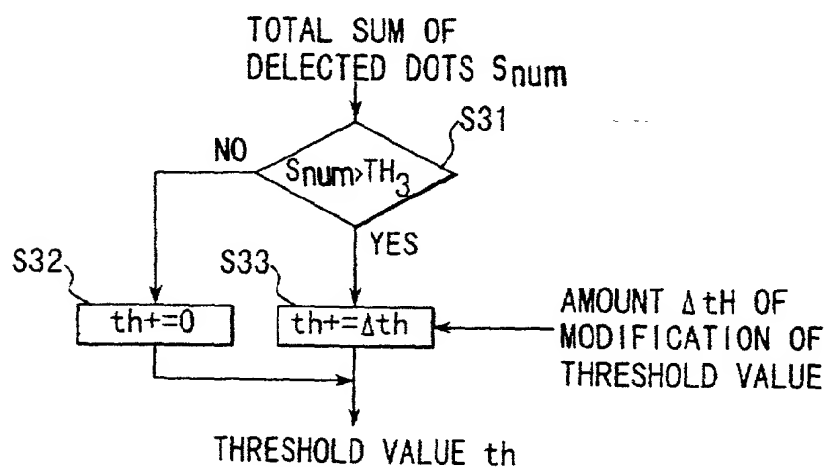


FIG. 26

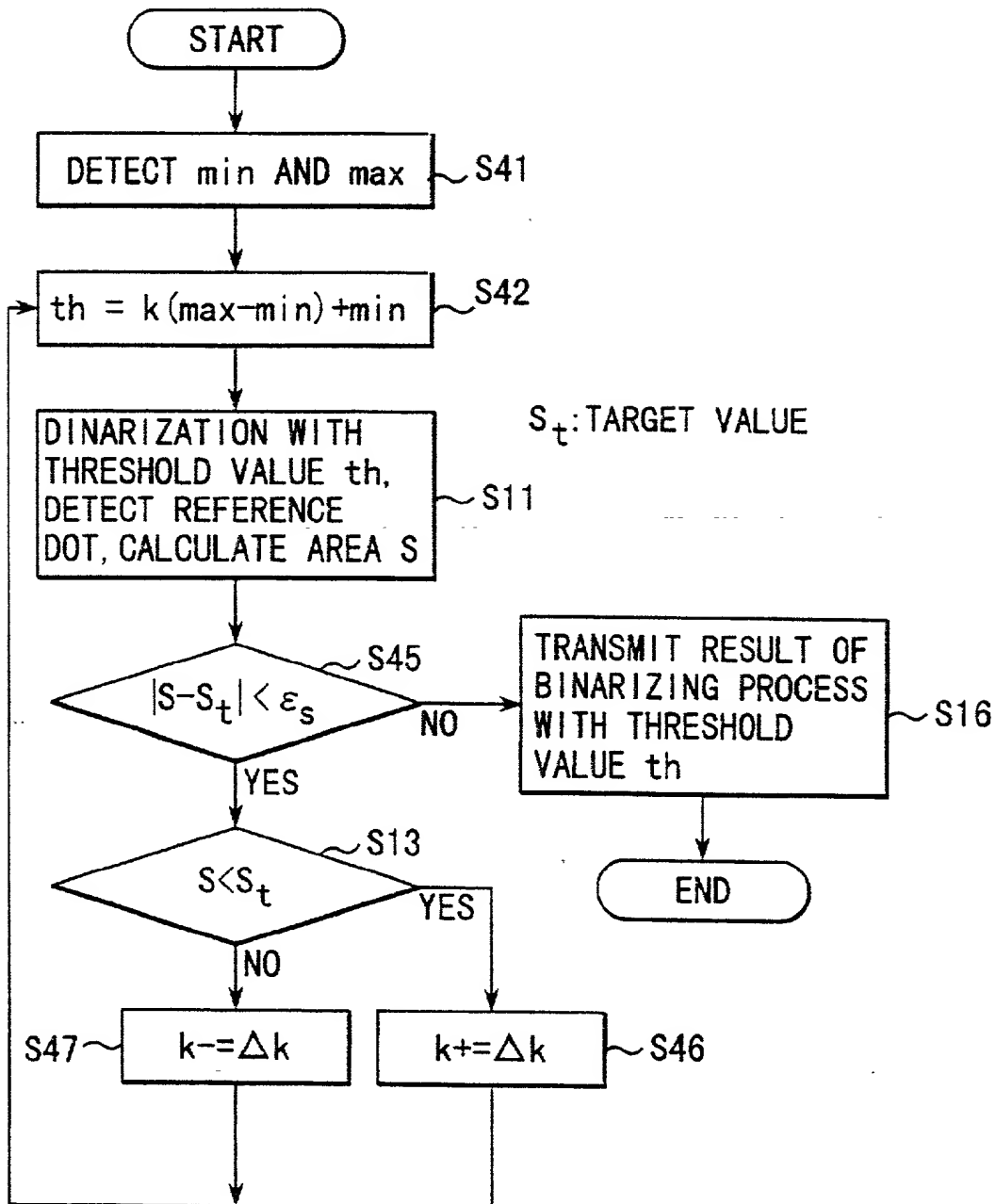


FIG. 29

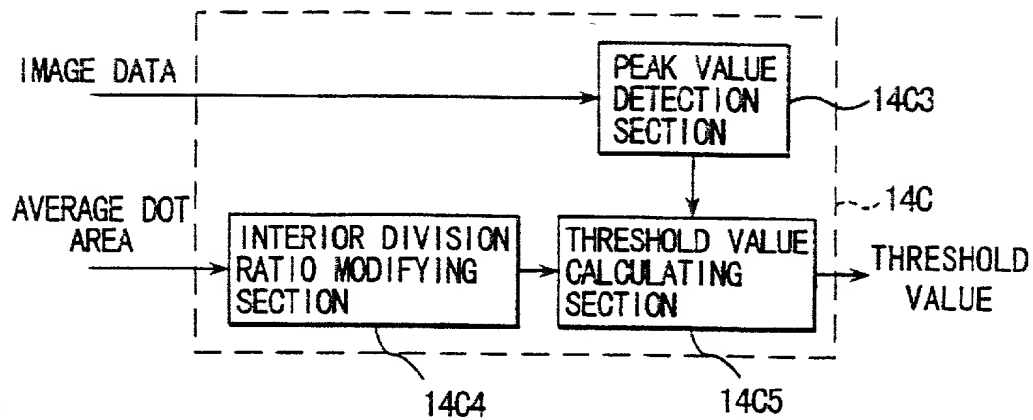


FIG. 27

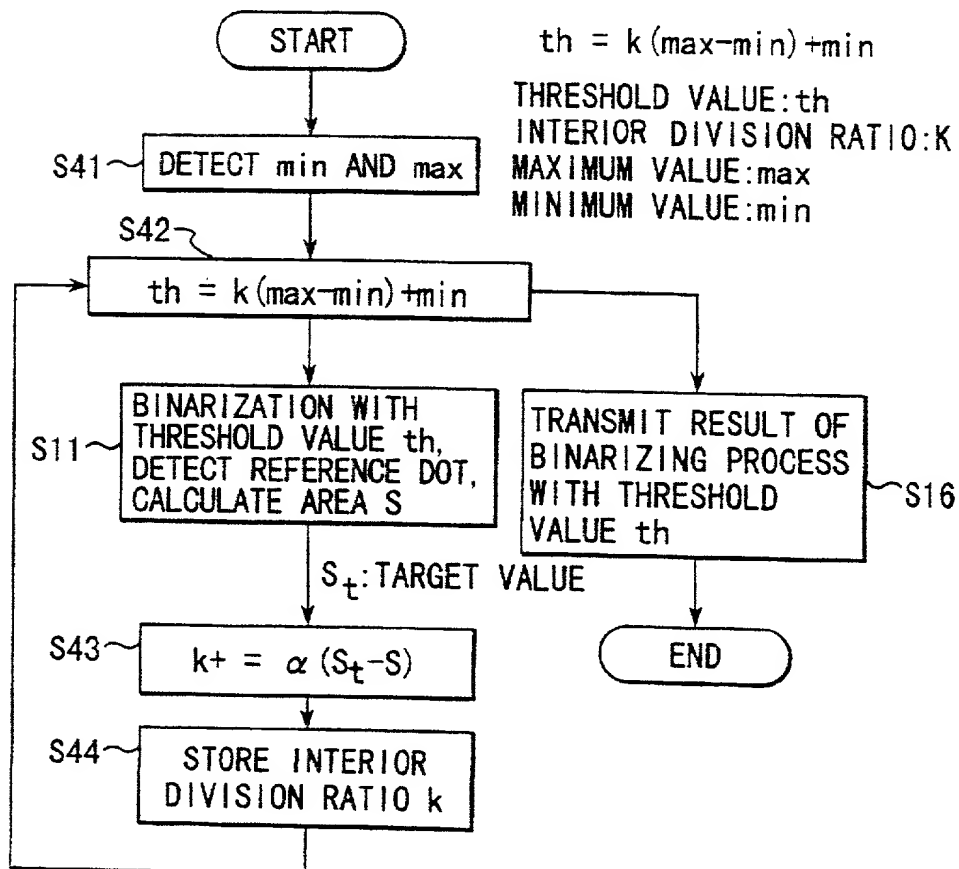
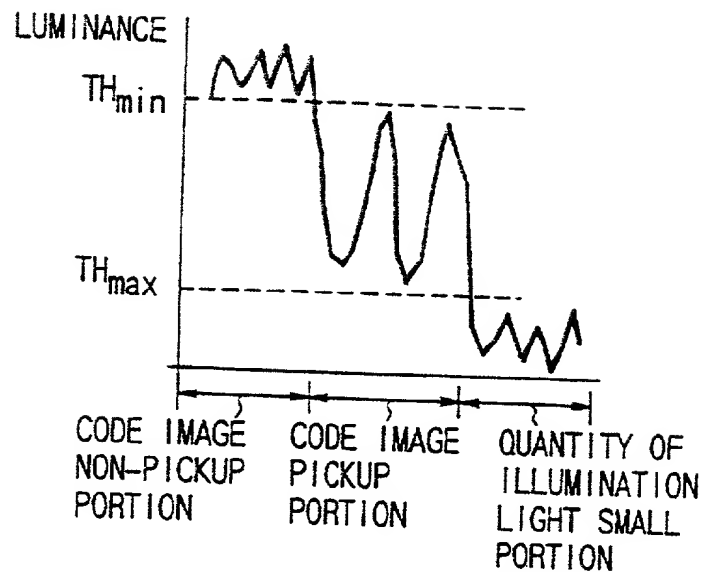


FIG. 28

FIG. 30



WHEN BLANK FRAME IS  
DETECTED AFTER CODE  
HAS BEEN PICKED UP,  
PROCESS IS COMPLETED

FIG. 31

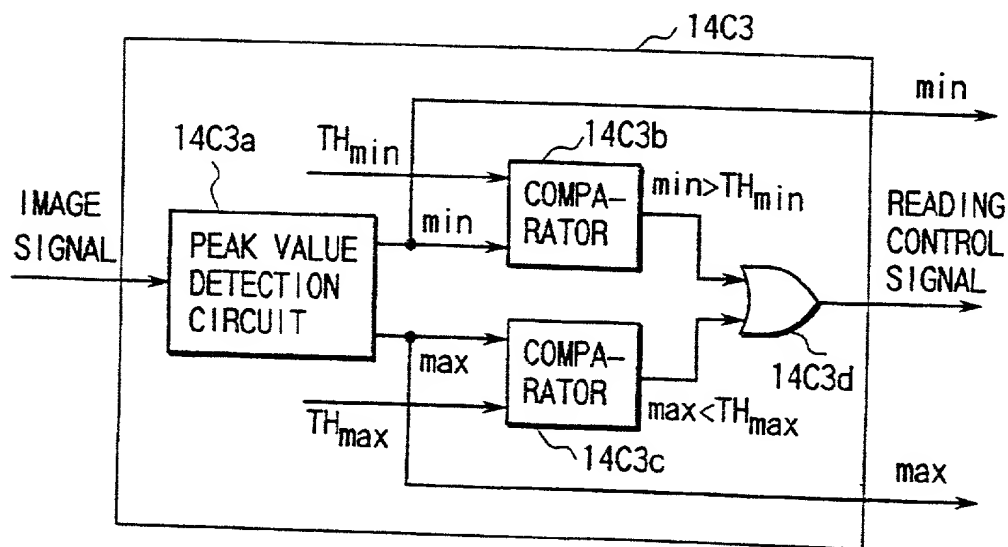
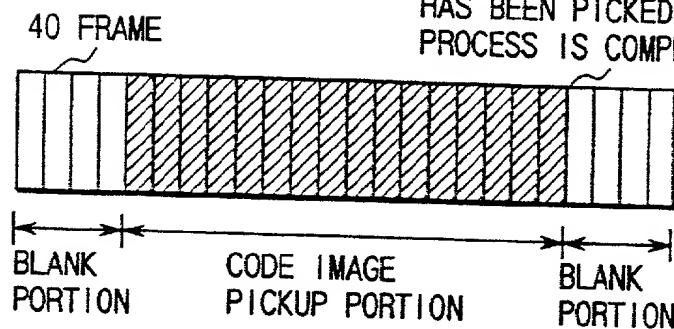


FIG. 32



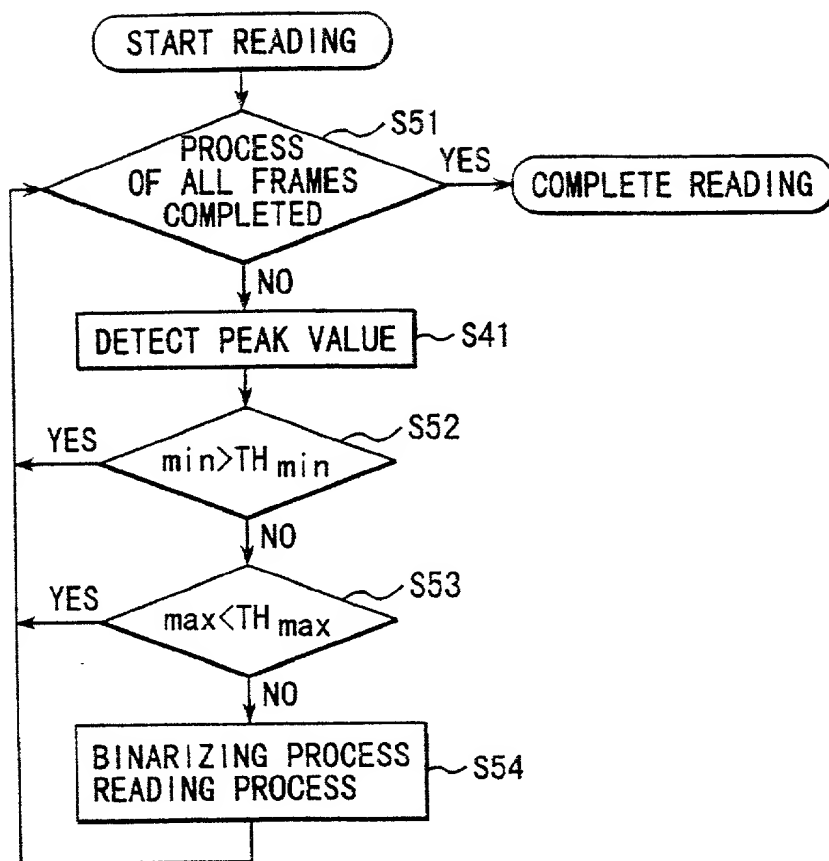


FIG. 33

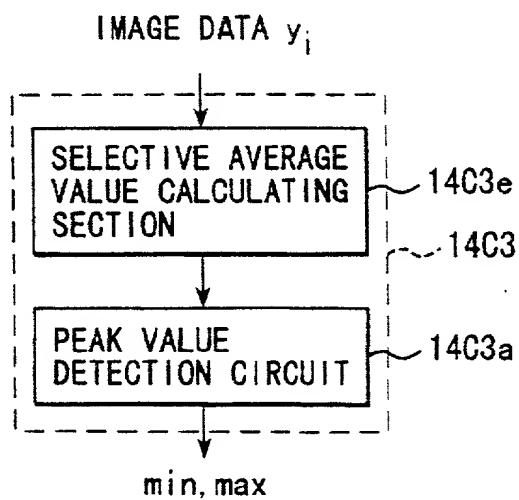


FIG. 34

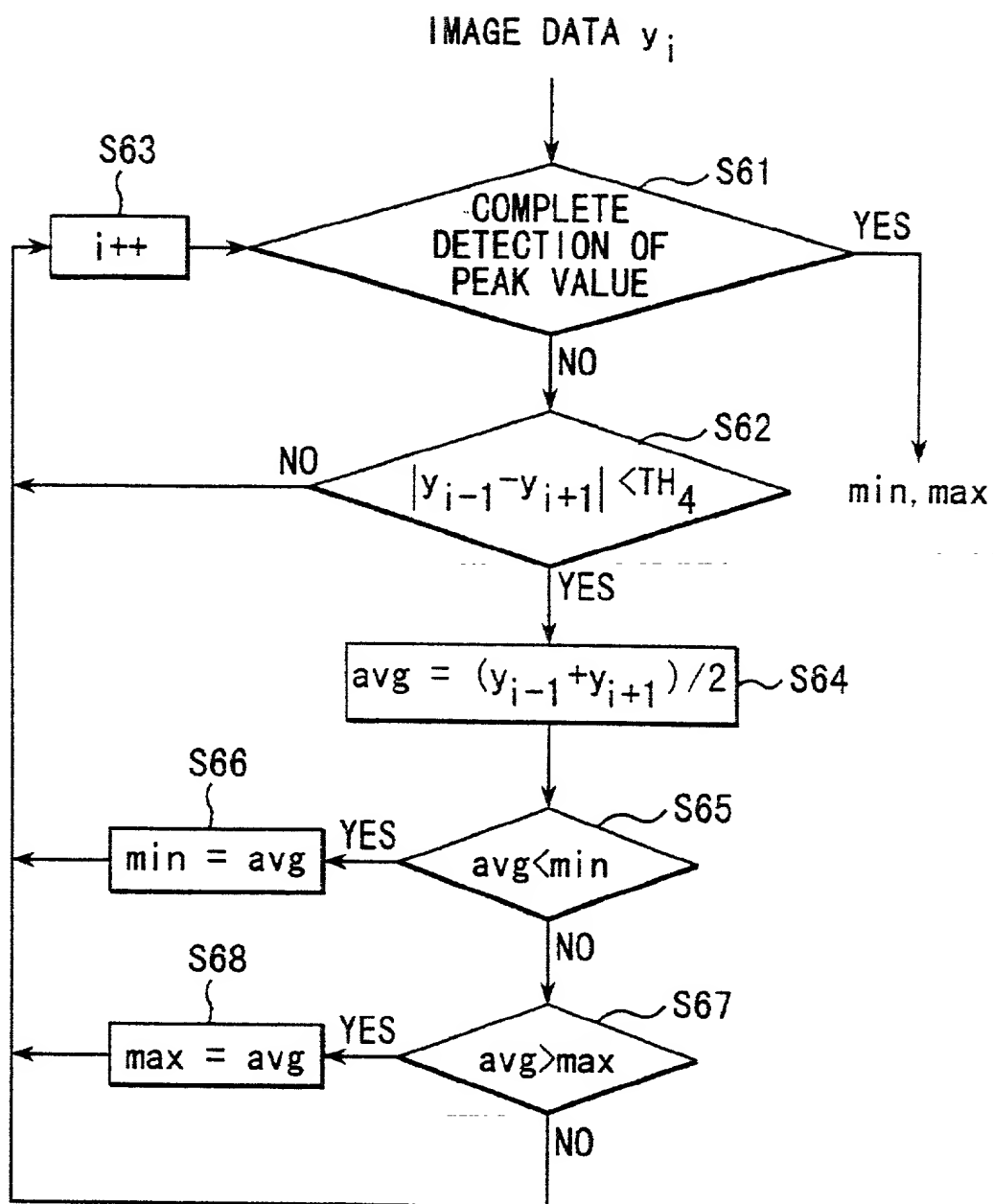


FIG. 35

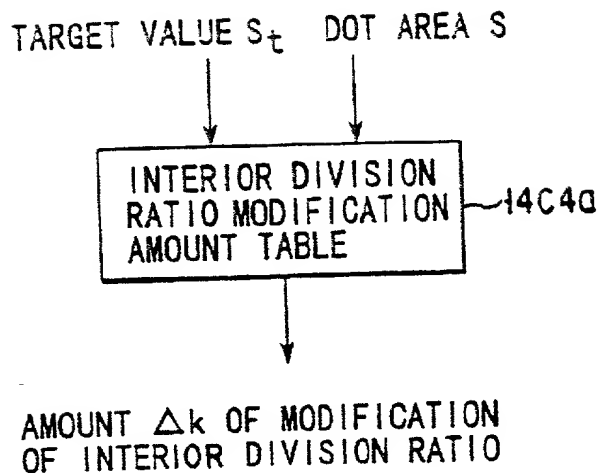


FIG. 36A

INTERIOR DIVISION RATIO  
MODIFICATION AMOUNT TABLE 14C4a

$S_t \backslash S$	6.0	6.5	7.0	7.5	8.0	8.5
6.0		-0.06	-0.13	-0.20	-0.28	-0.37
6.5	0.05		-0.07	-0.14	-0.21	-0.29
7.0	0.11	0.06		-0.08	-0.15	-0.22
7.5	0.17	0.12	0.07		-0.09	-0.16
8.0	0.24	0.18	0.13	0.08		-0.10
8.5	0.32	0.25	0.19	0.14	0.09	

IF MEASURED DOT AREA IS 7.0 AND TARGET VALUE IS 8.0, THE AMOUNT OF MODIFICATION OF INTERIOR DIVISION RATIO IS  $\Delta k = 0.13$  IN ACCORDANCE WITH THE TABLE

FIG. 36B

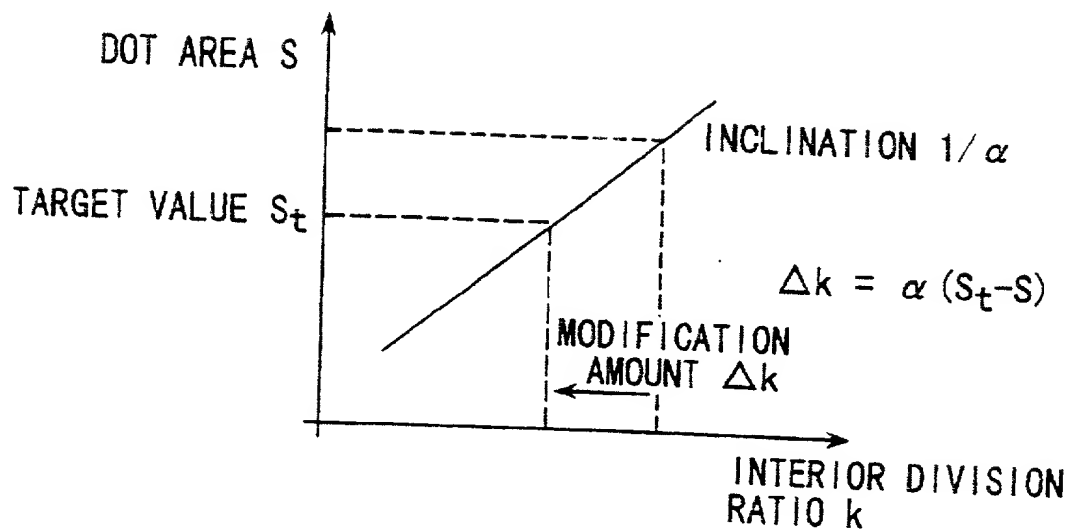


FIG. 37

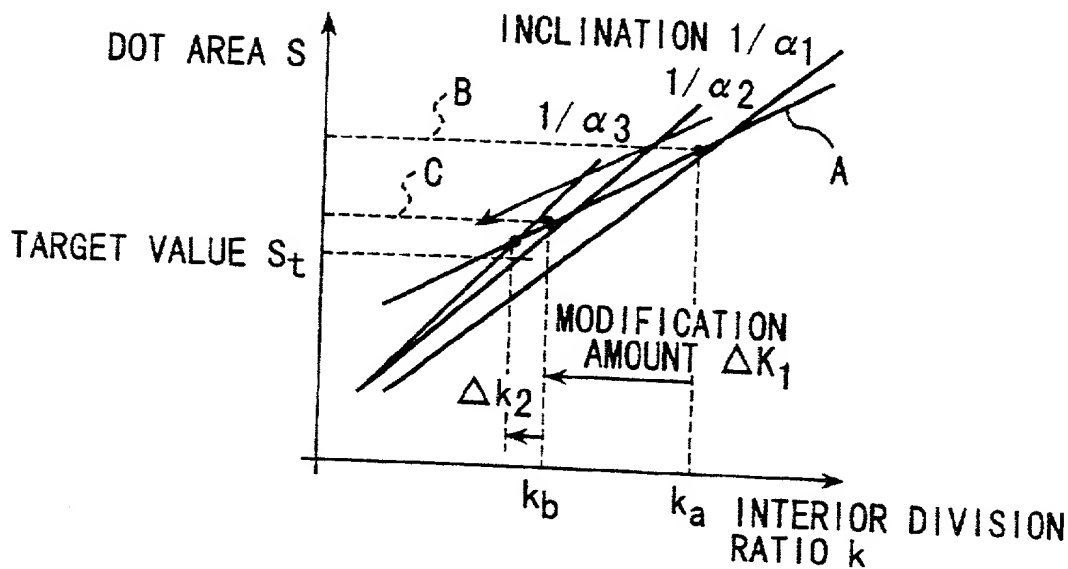
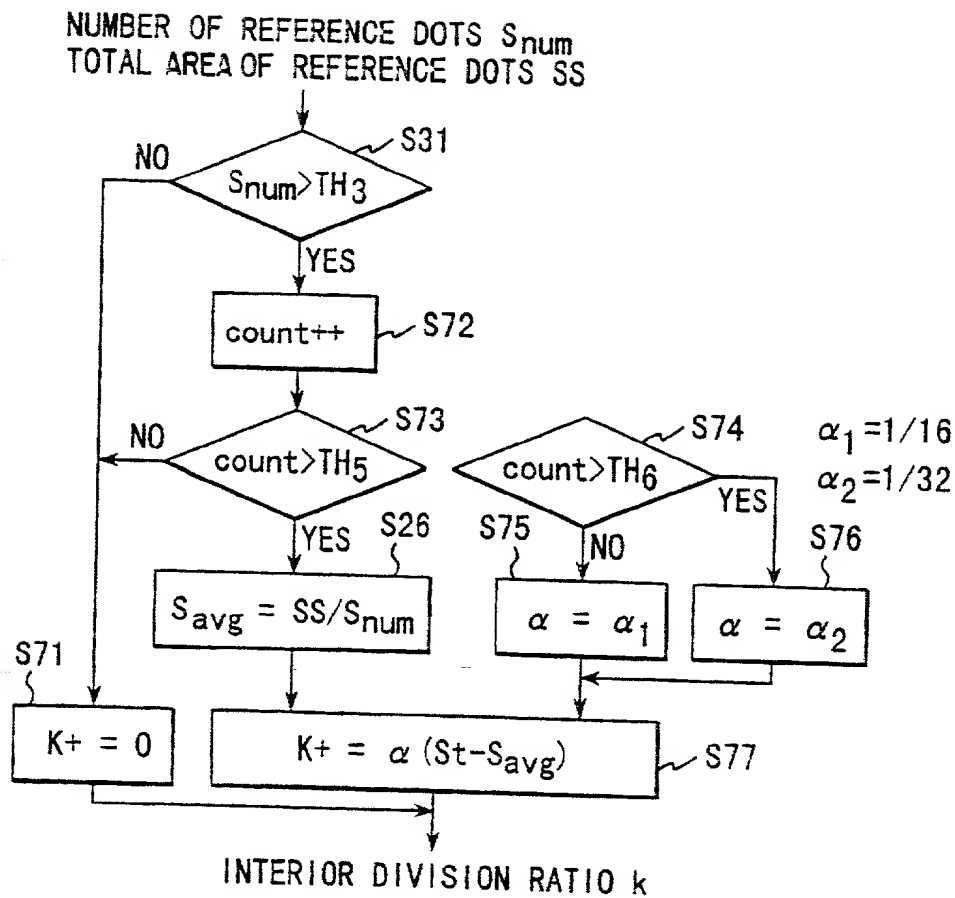
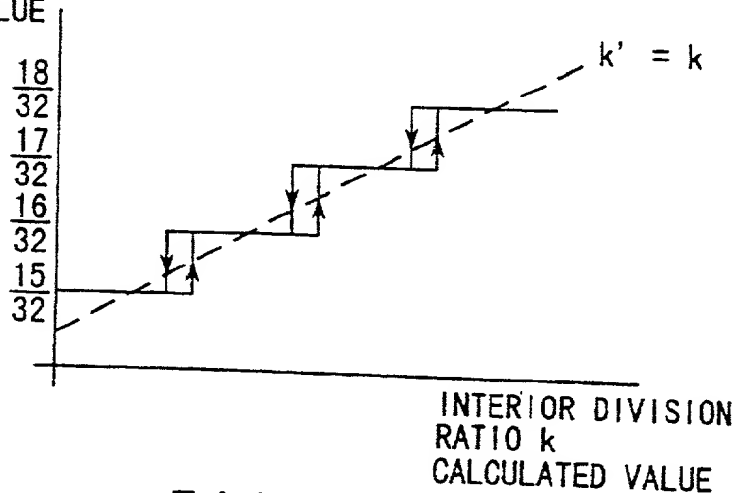


FIG. 38



INTERIOR DIVISION  
RATIO  $k'$   
ACTUAL VALUE



INTERIOR DIVISION  
RATIO  $k'$   
ACTUAL VALUE

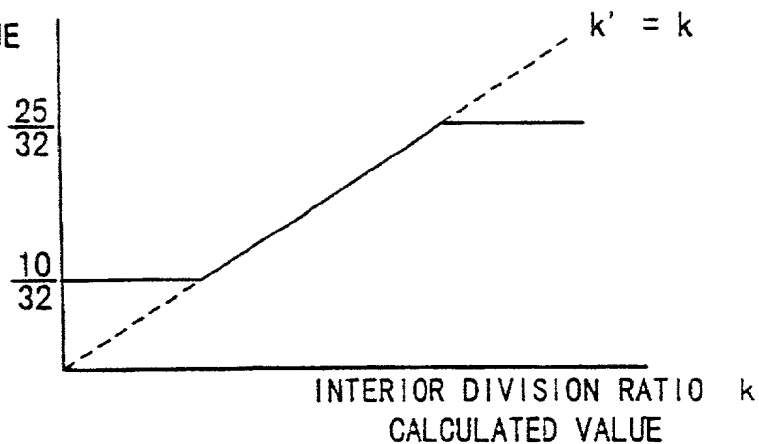


FIG. 41

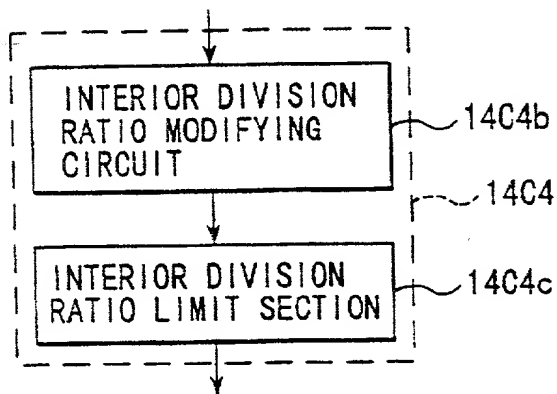


FIG. 42

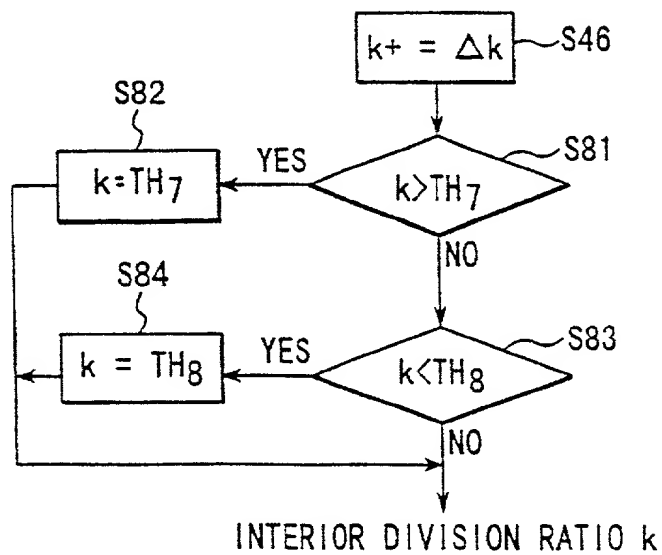


FIG. 43

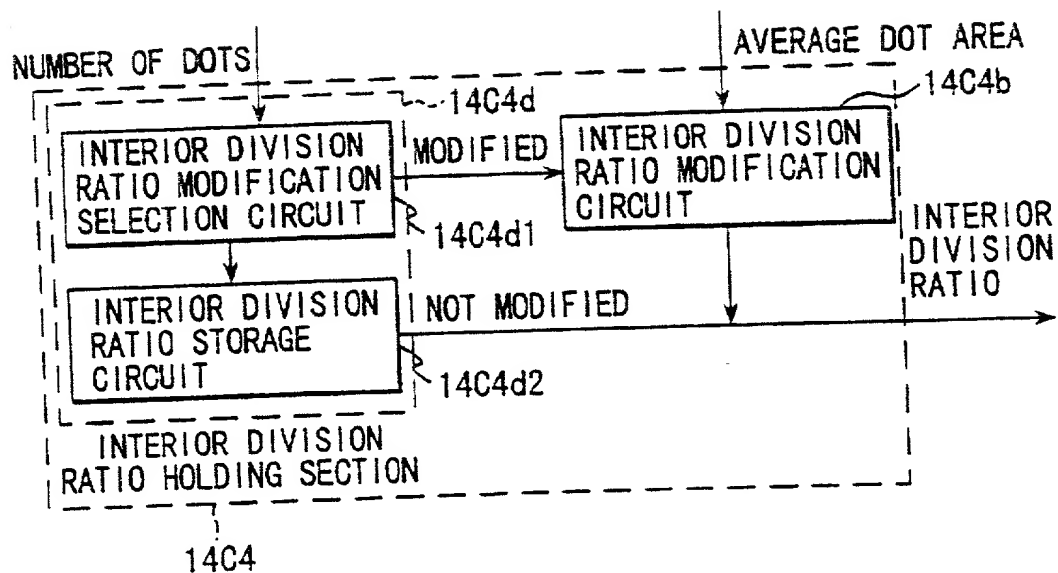


FIG. 44

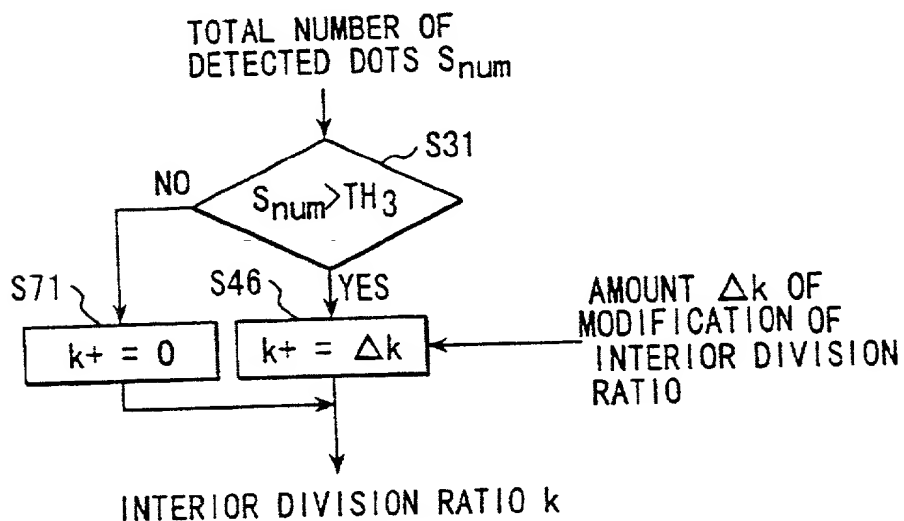


FIG. 45

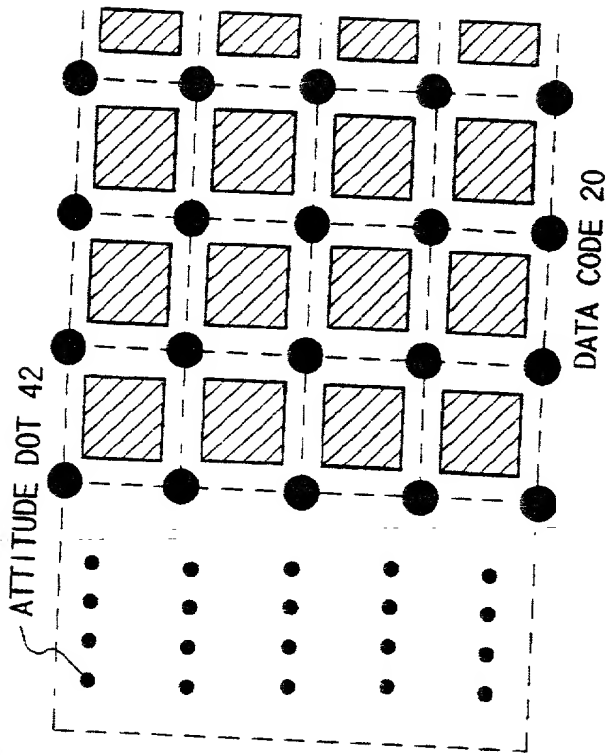
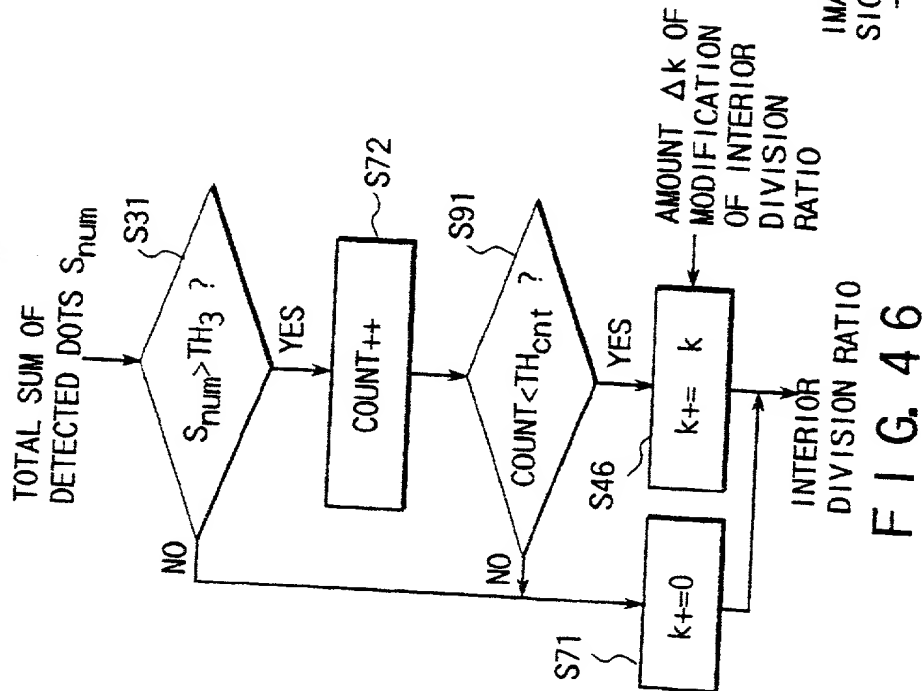


FIG. 47

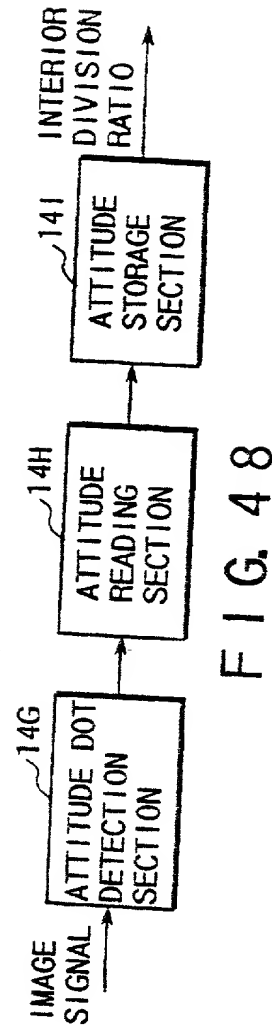


FIG. 48



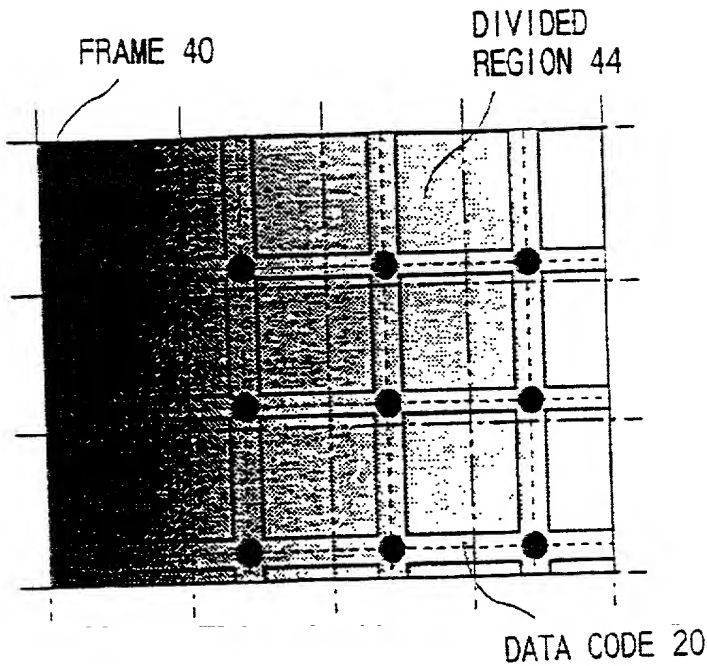


FIG. 49

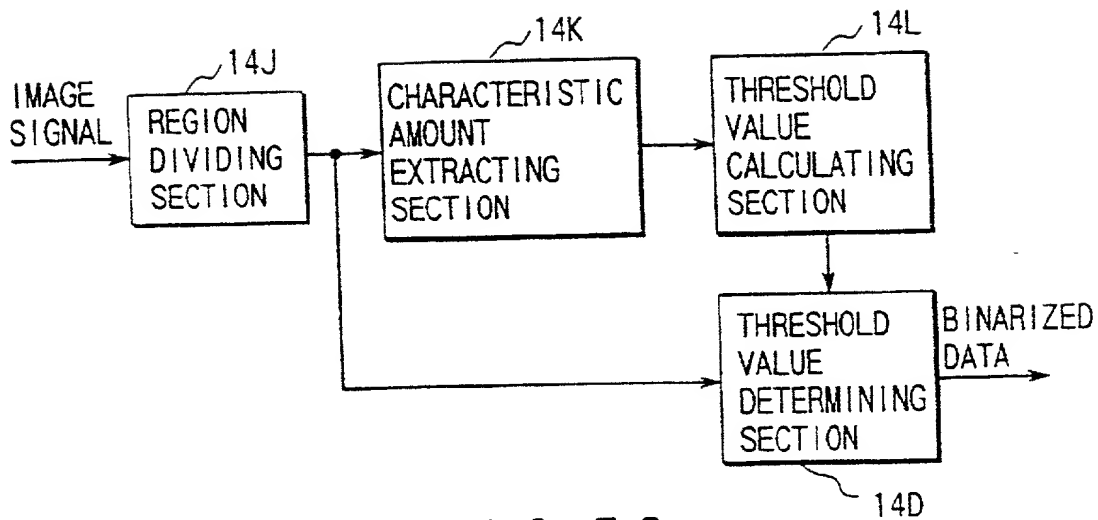


FIG. 50

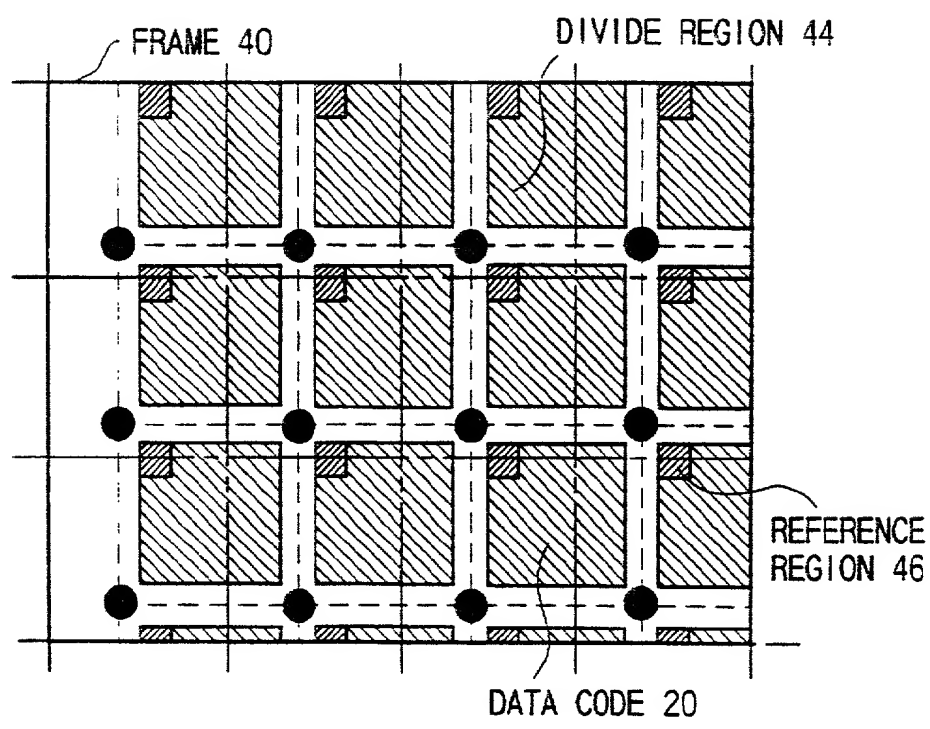


FIG. 51

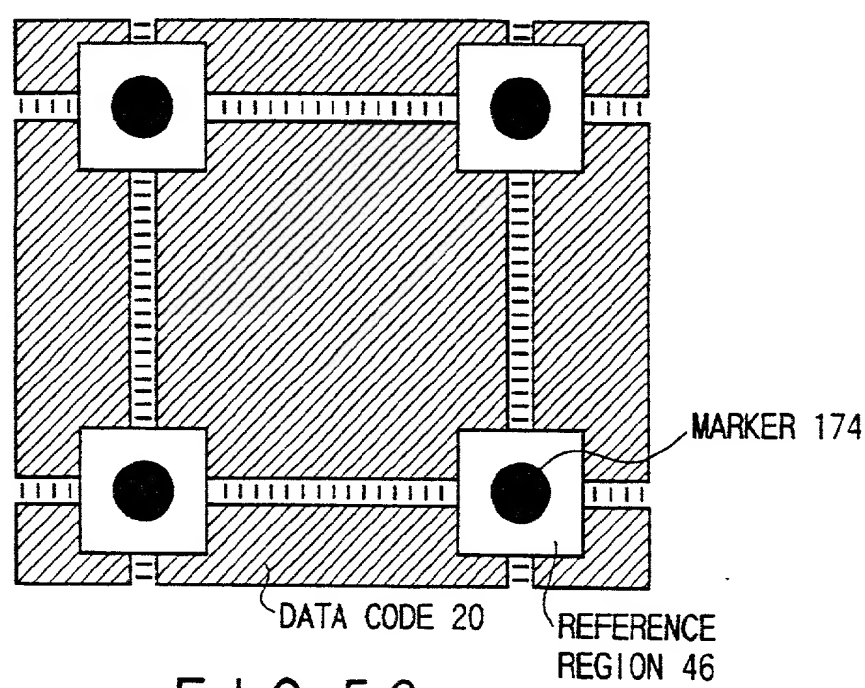


FIG. 52

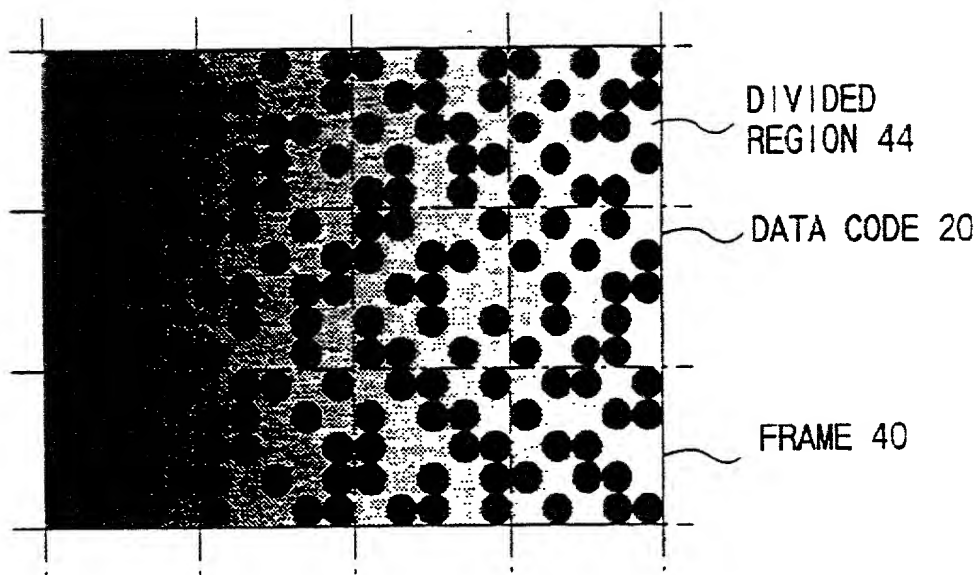
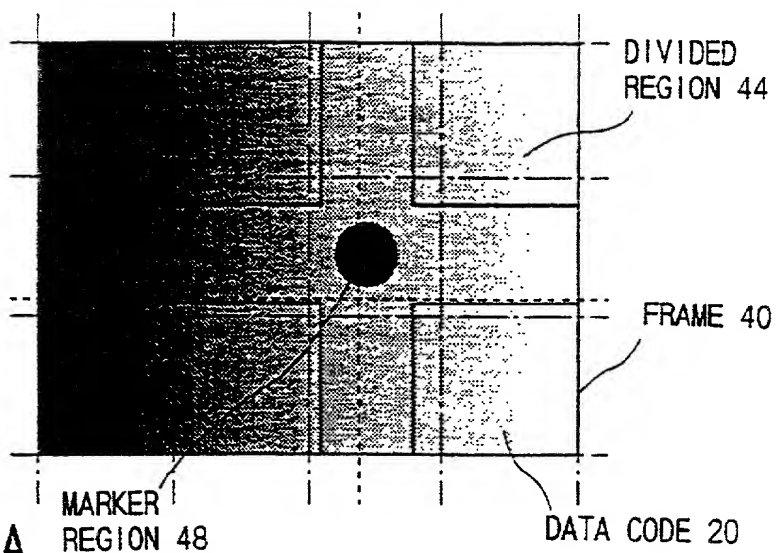


FIG. 53A

max=180 th=90	max=190 th=95	max=200 th=100	max=210 th=105
max=182 th=91	max=193 th=92	max=205 th=103	max=212 th=106
max=178 th=89	max=187 th=94	max=198 th=99	max=207 th=104

FIG. 53B



max=180 min=60 →20	max=190 min=63 →20	max=200 min=65 →20	max=210 min=68 →20
max=182 min=61 →20	max=193 min=65 →20	max=205 min=20 fr_min20	max=212 min=69 →20
max=178 min=58 →20	max=187 min=60 →20	max=198 min=62 →20	max=207 min=65 →20

FIG. 54B

WHEN INTERIOR DIVISION RATIO  $k=0.5$  AND  
MINIMUM VALUE  $fr\_min$  OF OVERALL PORTION  
OF PREVIOUS FRAME IS 20

max=180 $th=k(180-20)+20$ =100	max=190 $th=k(190-20)+20$ =105	max=200 $th=k(200-20)+20$ =110	max=210 $th=k(210-20)+20$ =115
DIVIDED REGION 44			

FIG. 55

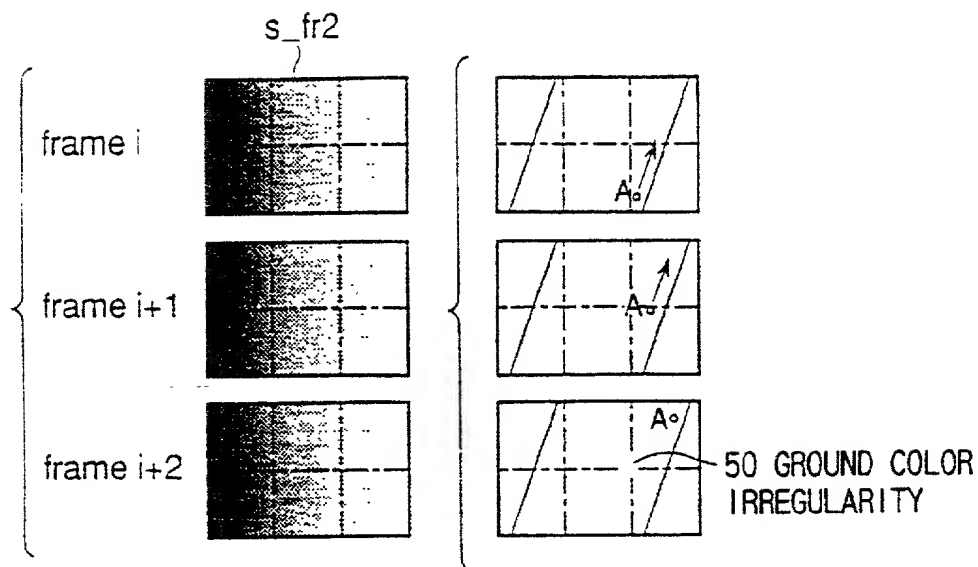


FIG. 56A

FIG. 56B

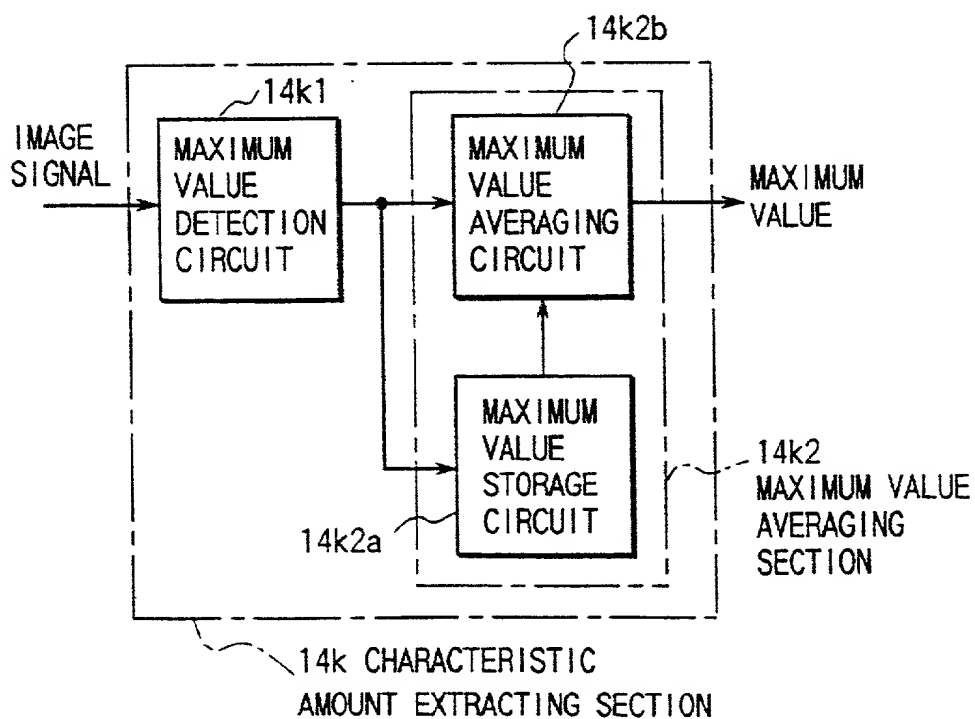


FIG. 57

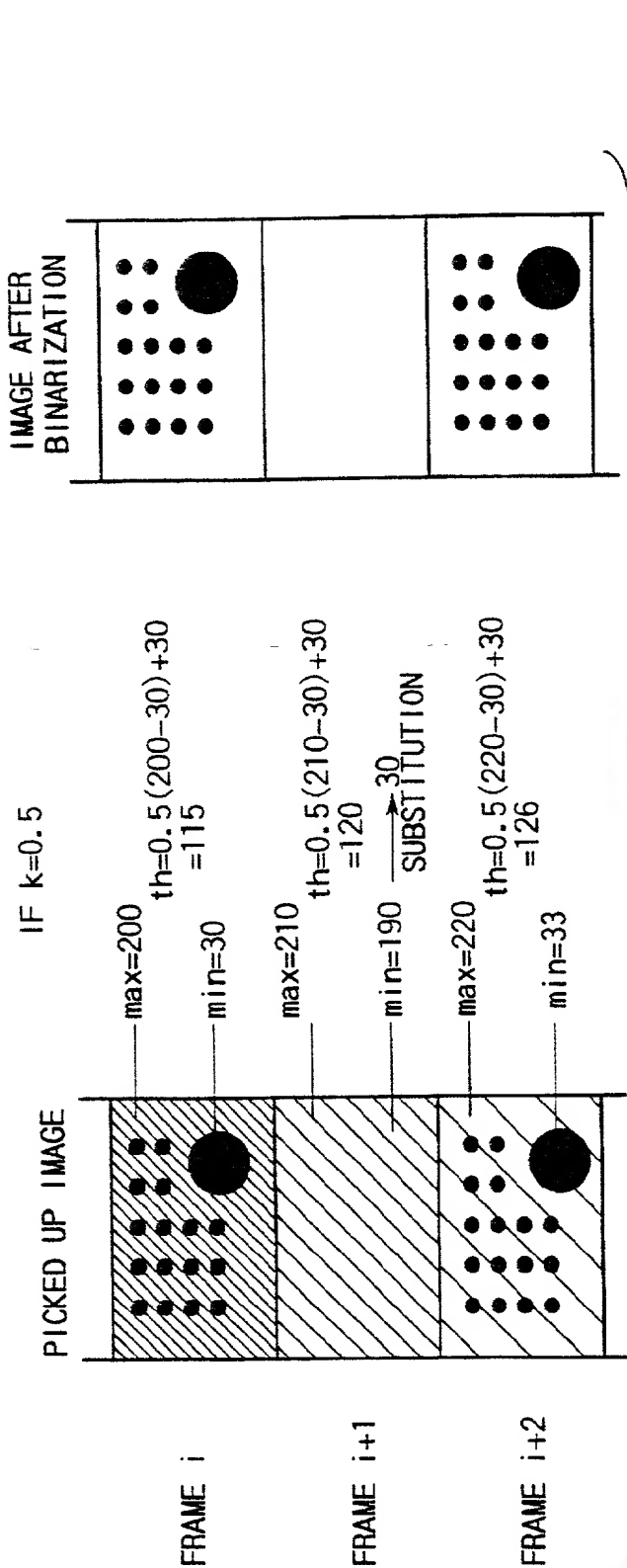


FIG. 58

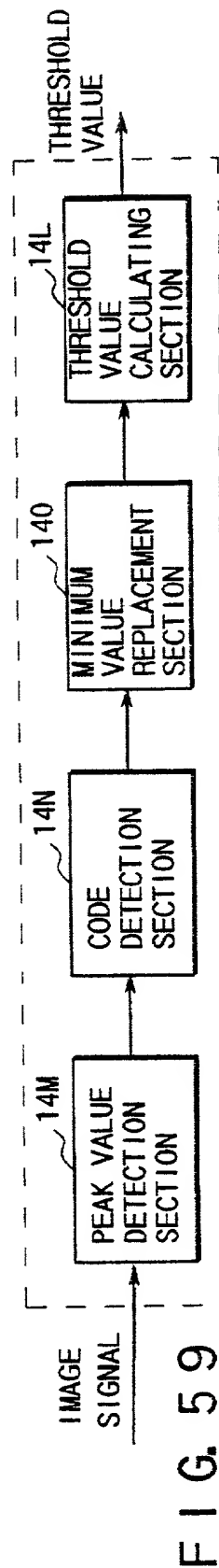


FIG. 59

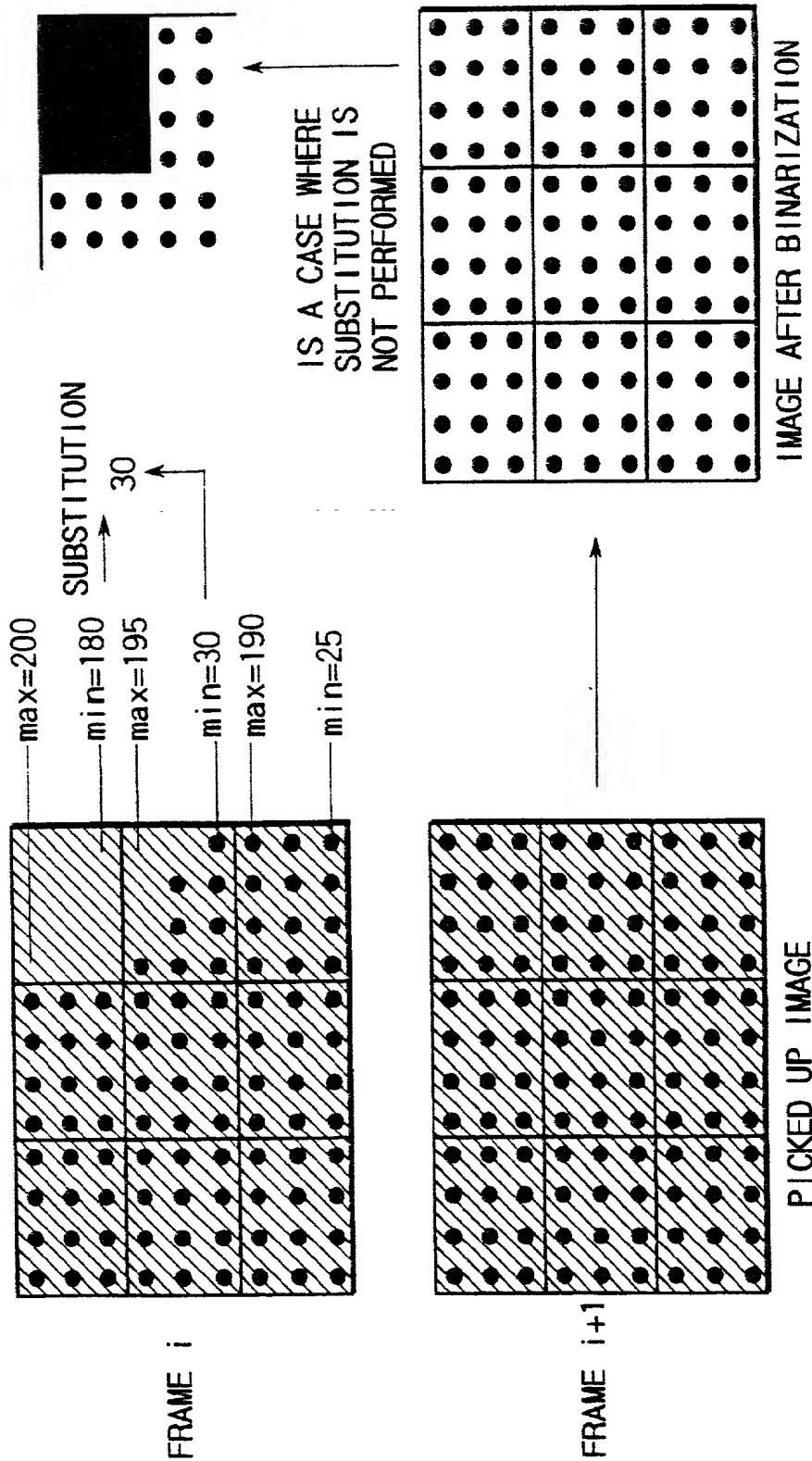


FIG. 60

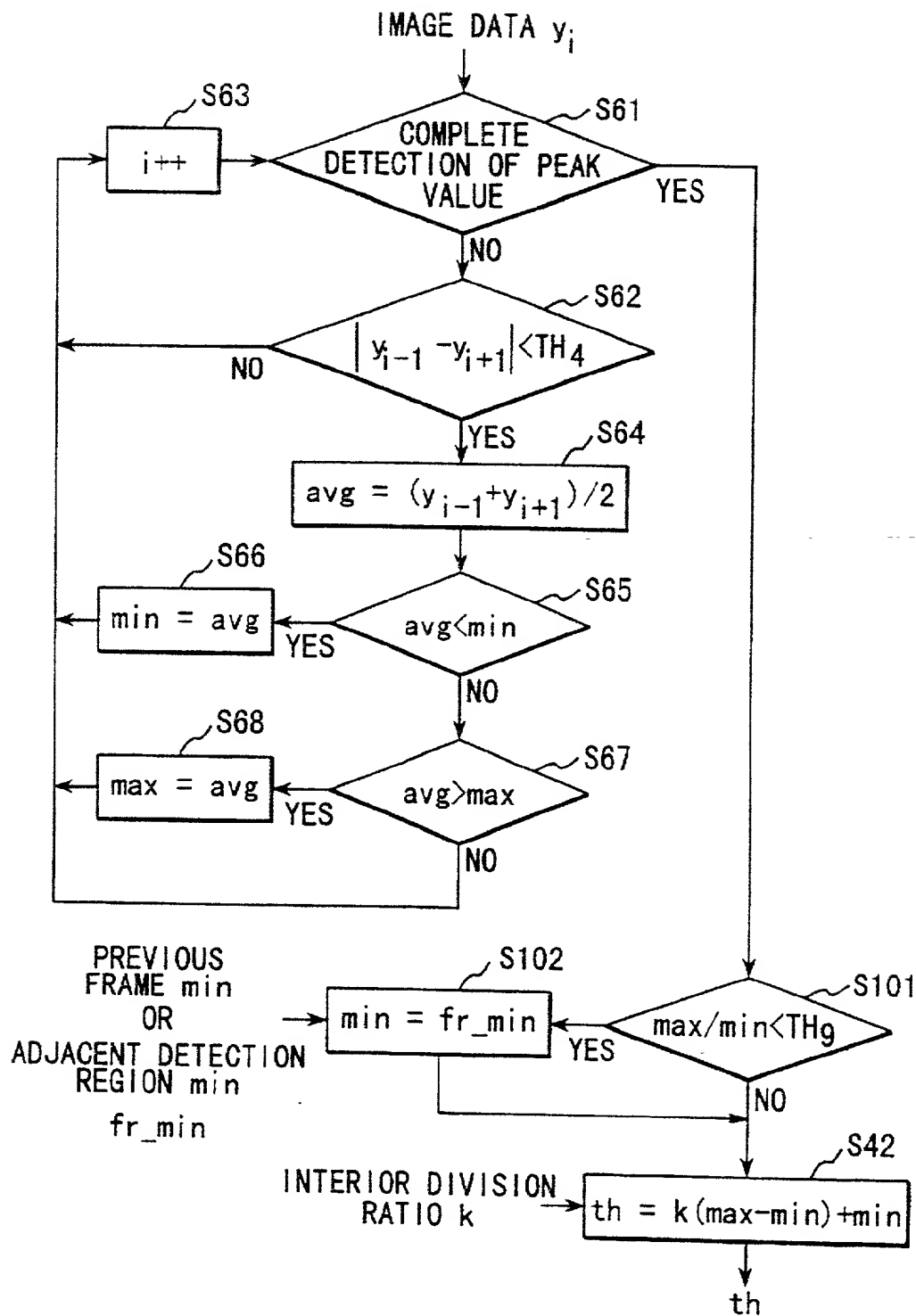


FIG. 61



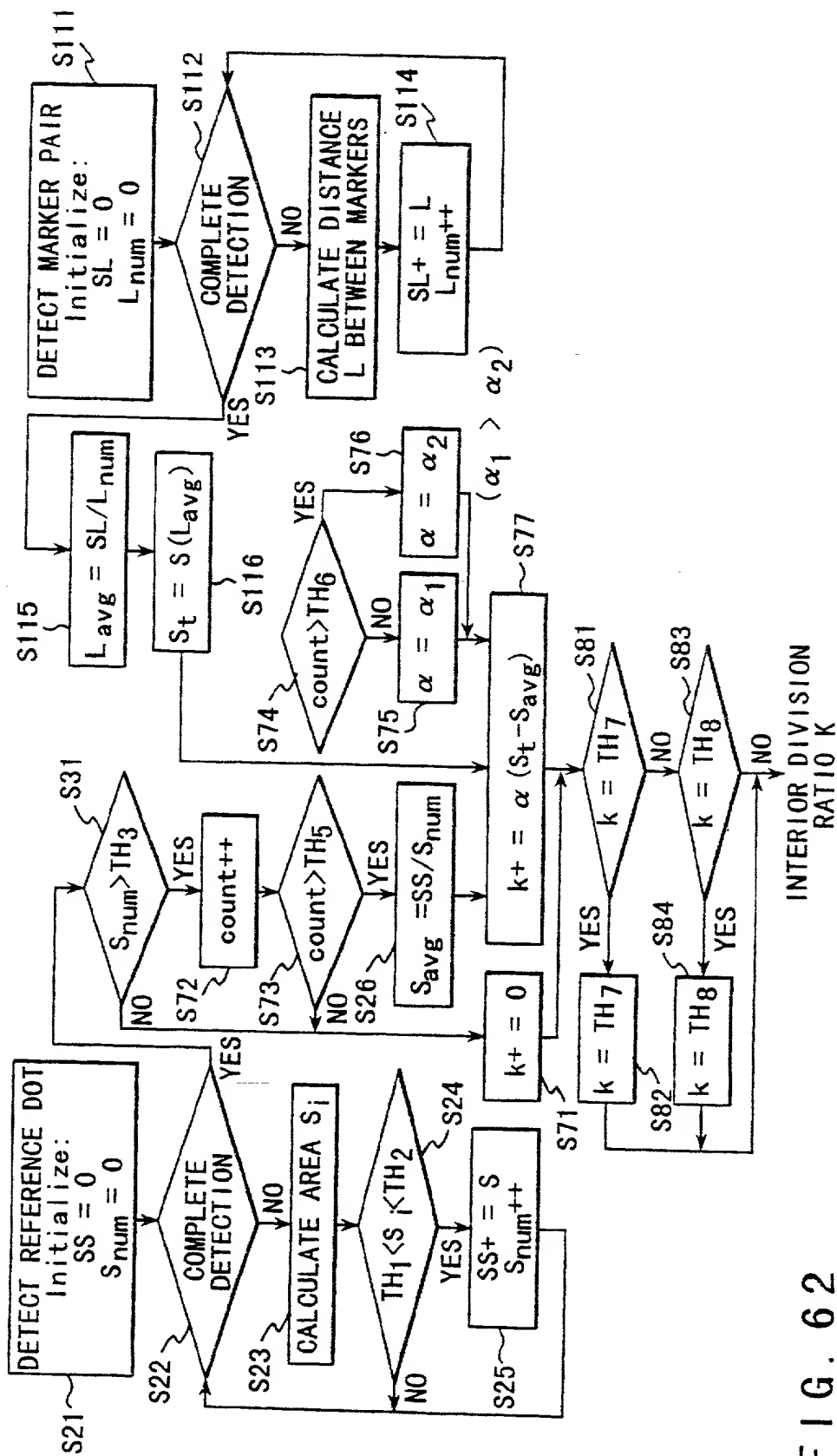


FIG. 62

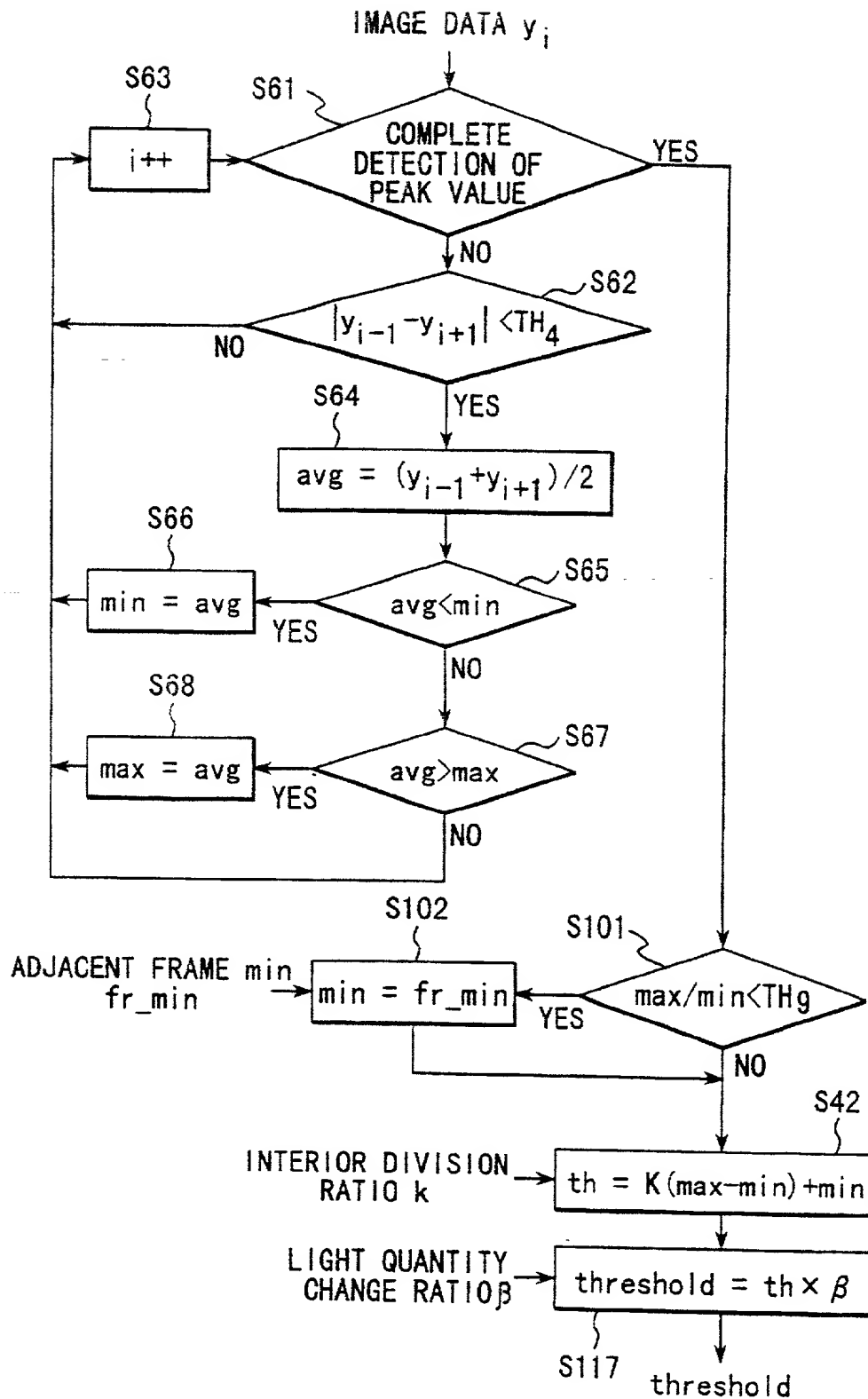


FIG. 63

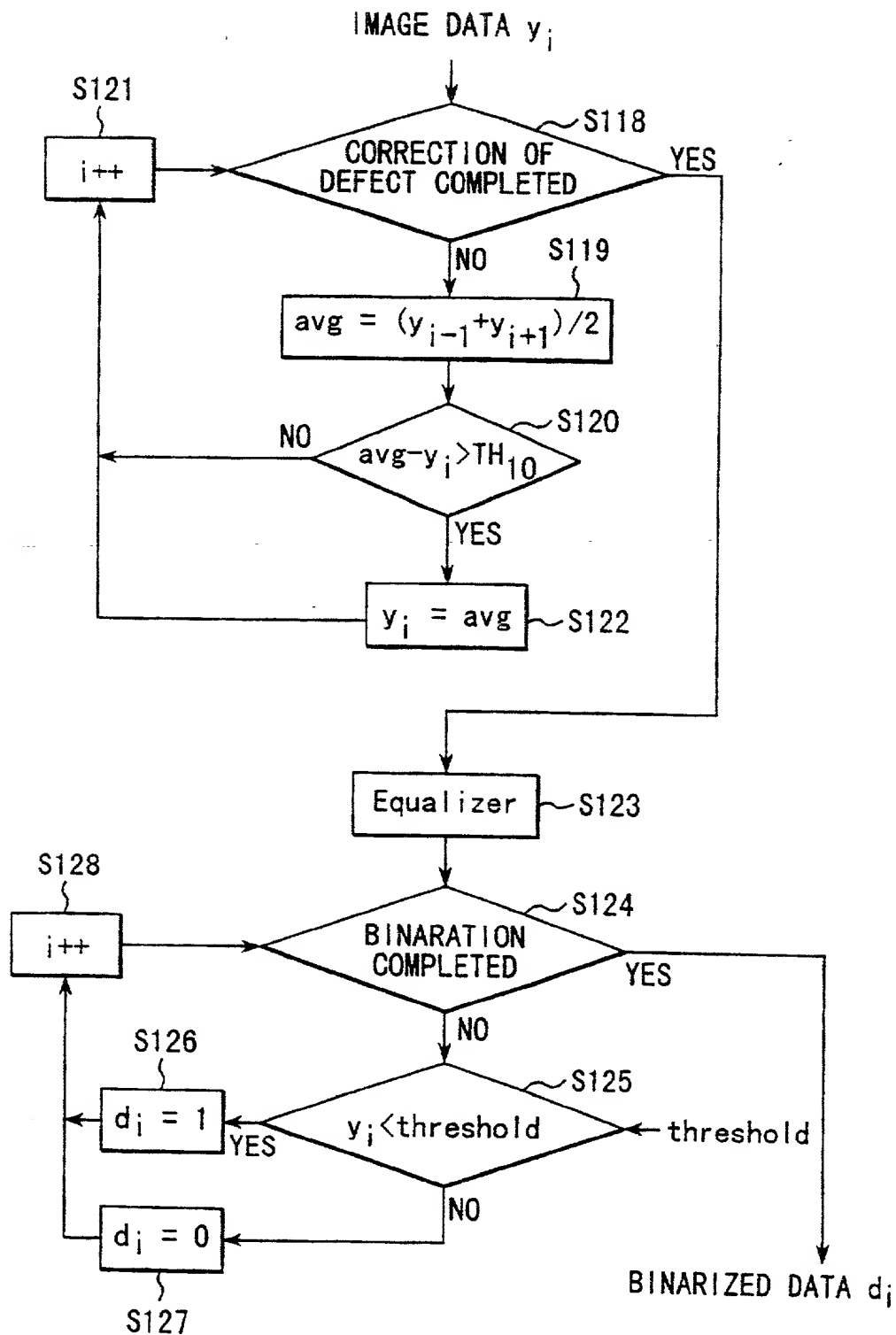


FIG. 64

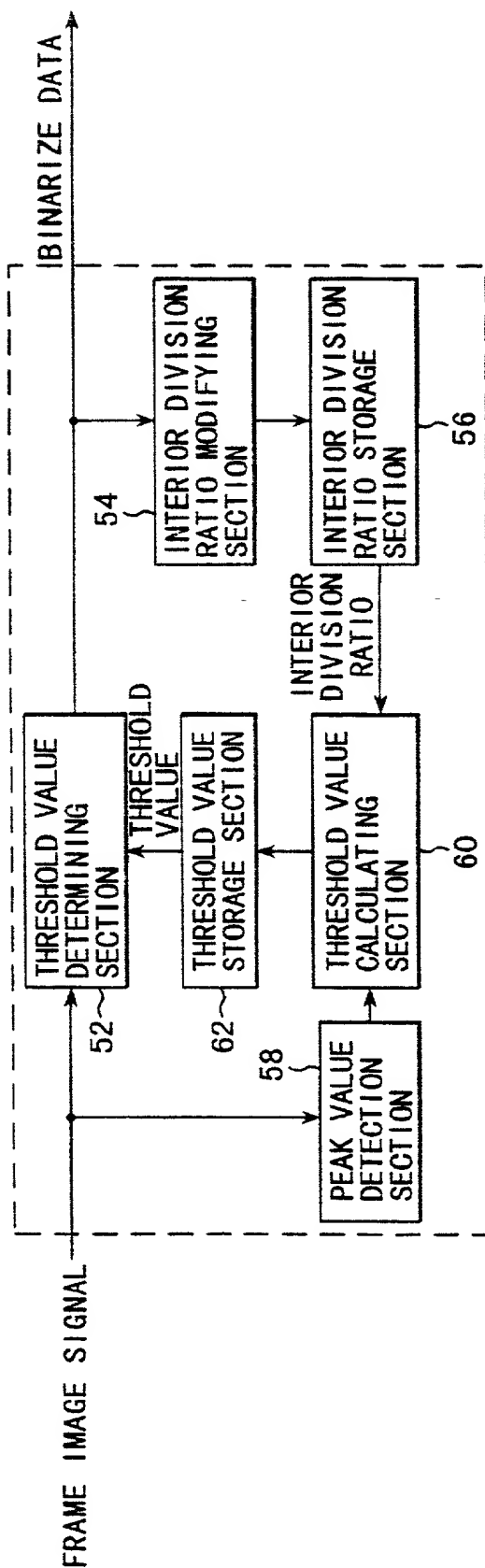


FIG. 65

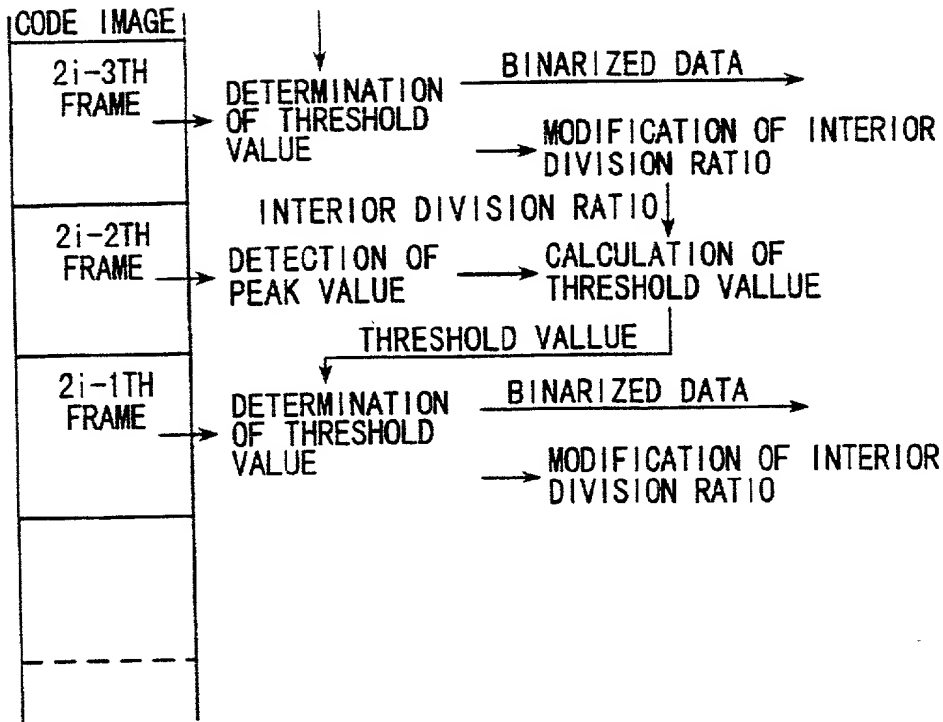


FIG. 66A

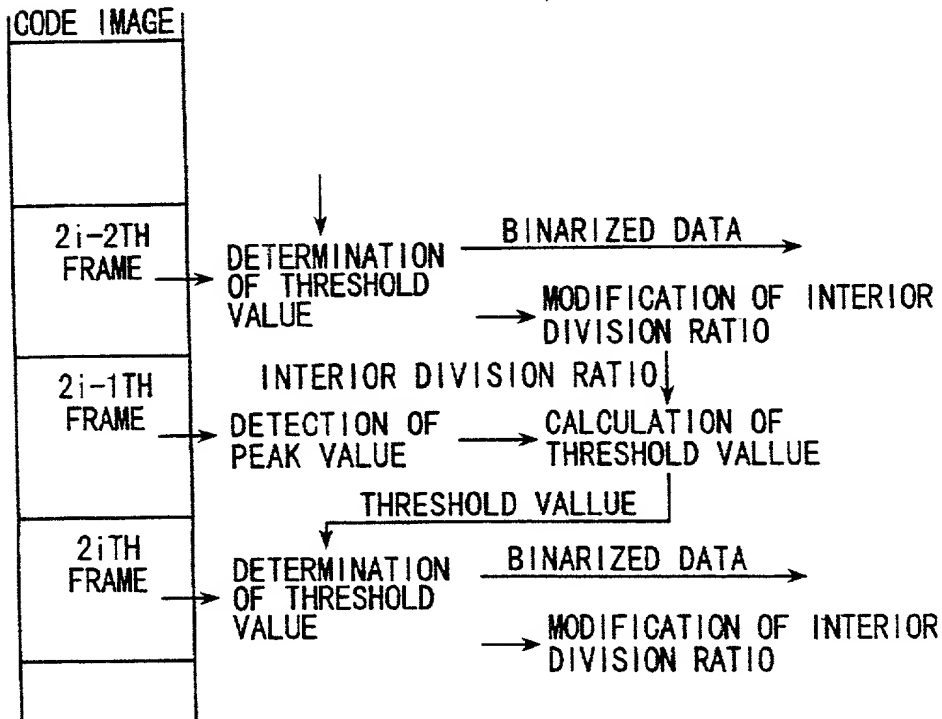


FIG. 66B

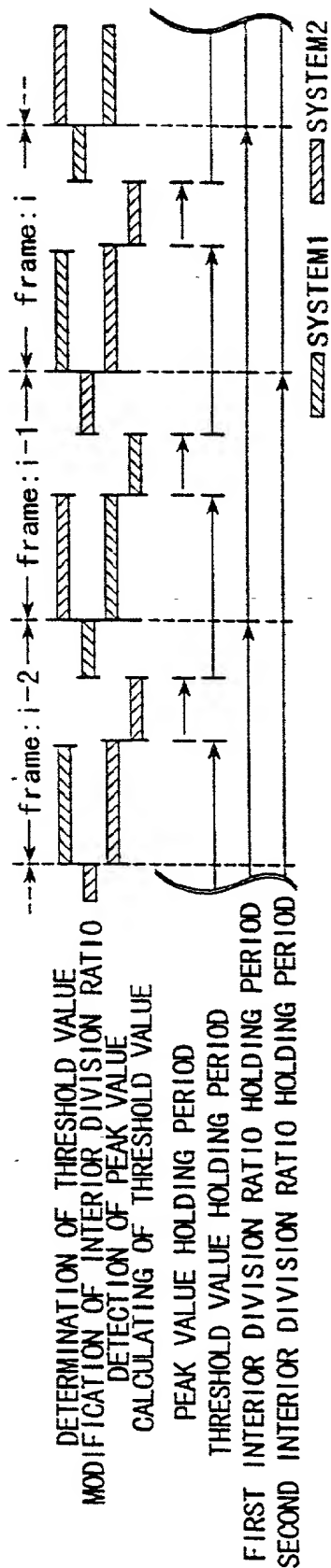


FIG. 67

FIG. 68A

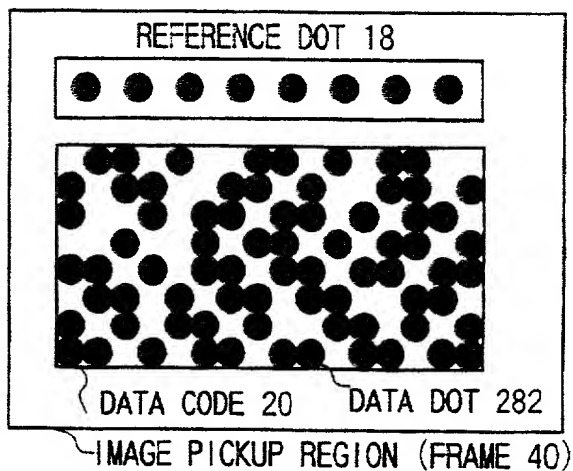


FIG. 68B

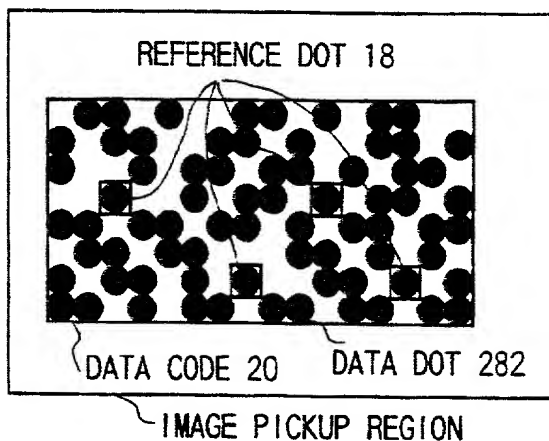


FIG. 69A

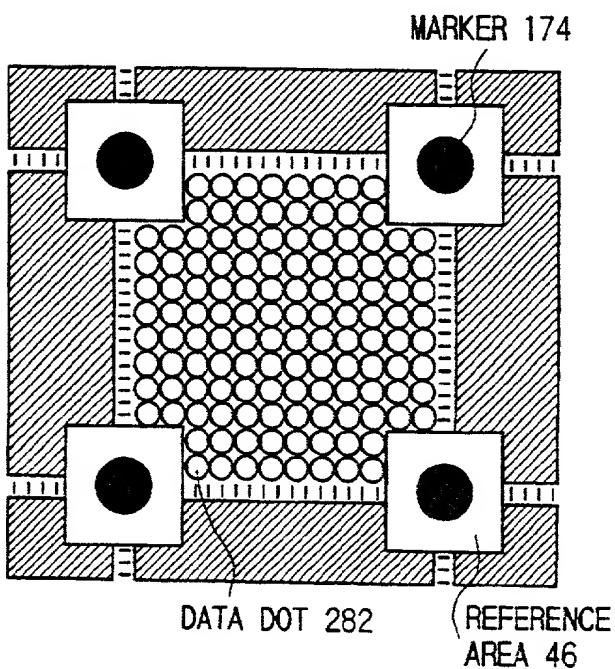


FIG. 69B

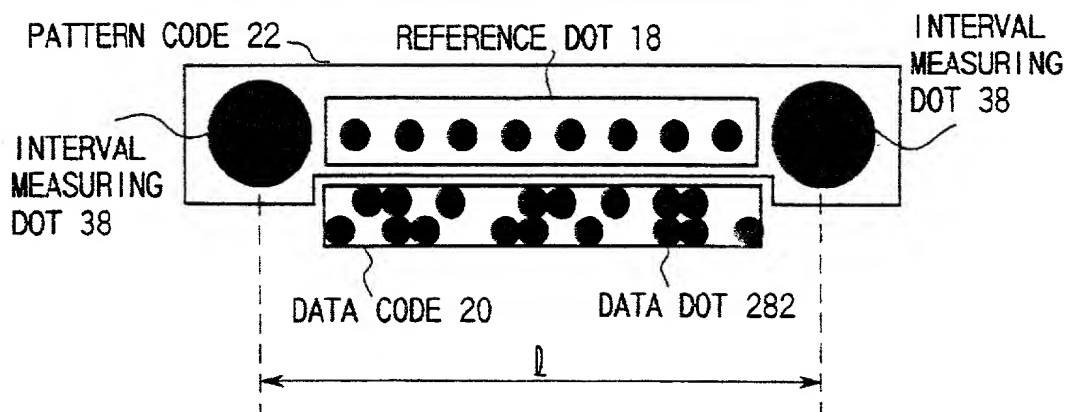
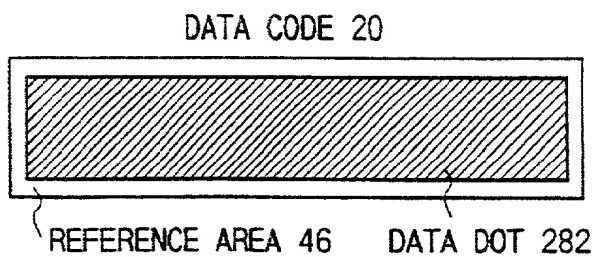


FIG. 70A

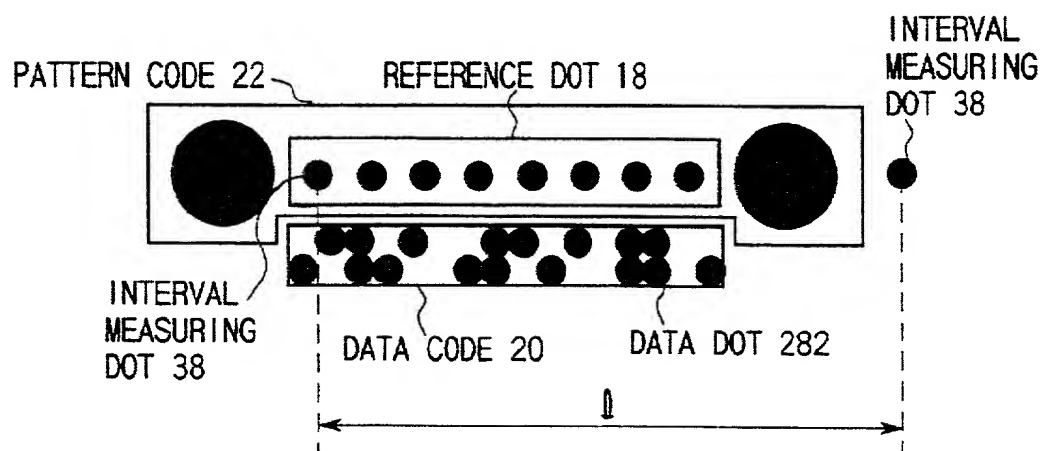


FIG. 70B



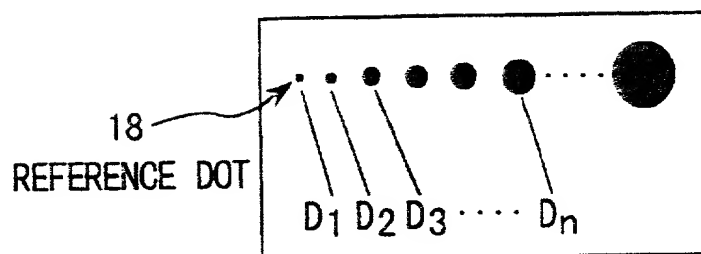


FIG. 71A

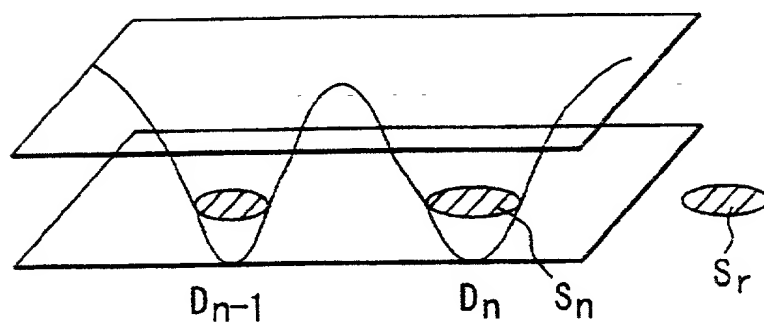
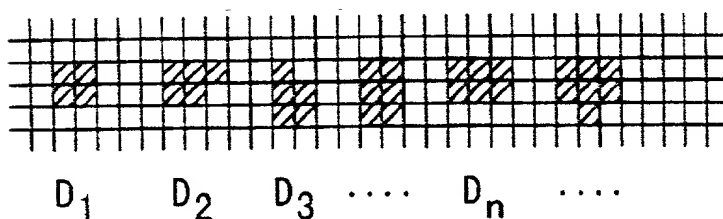


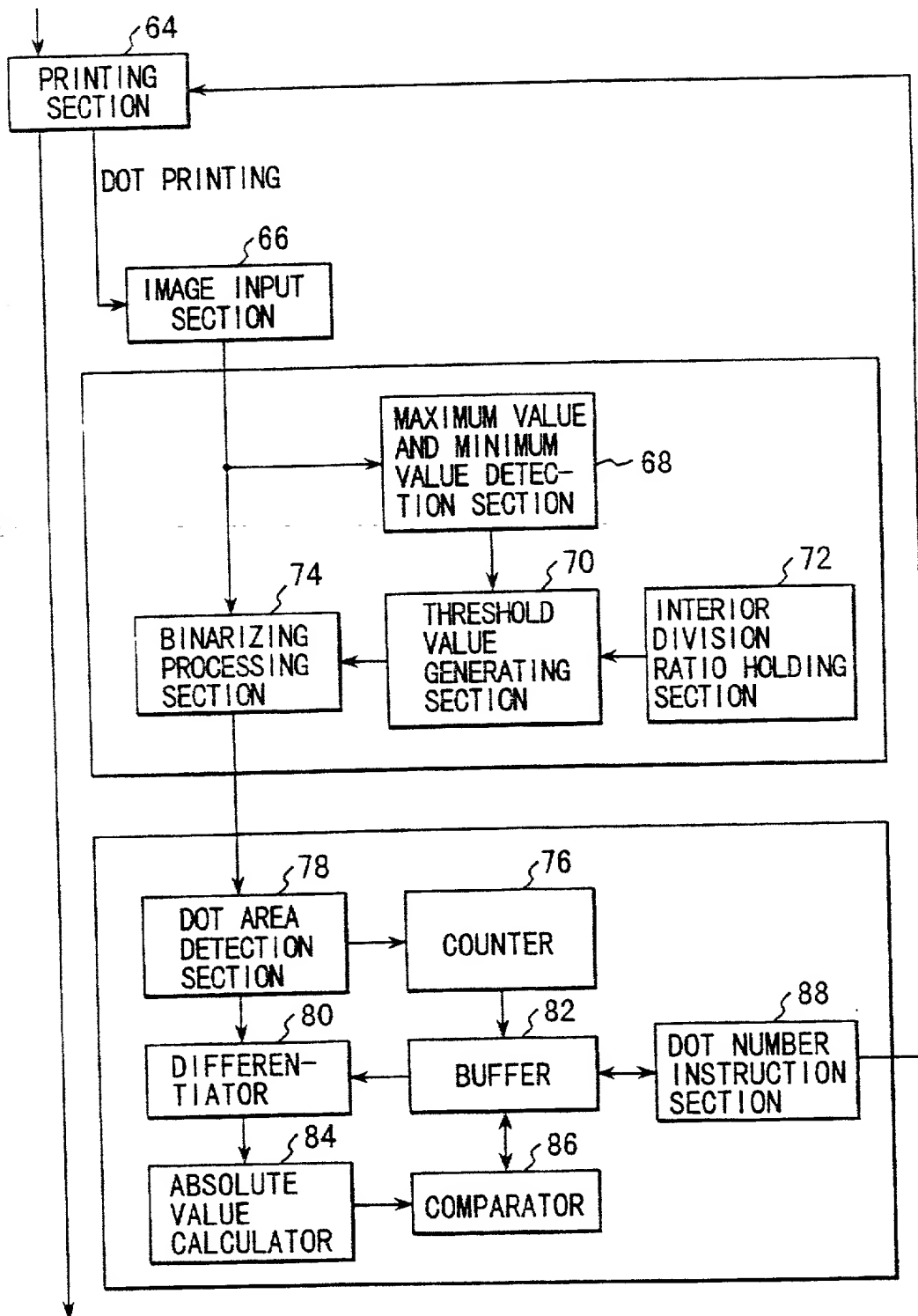
FIG. 71B



MINIMUM PRINTING UNIT  
☐ (RESOLVING POWER OF PRINTER)

FIG. 74

INPUT OF DATA TO BE PRINTED



OUTPUT OF RESULT OF PRINTING

FIG. 72

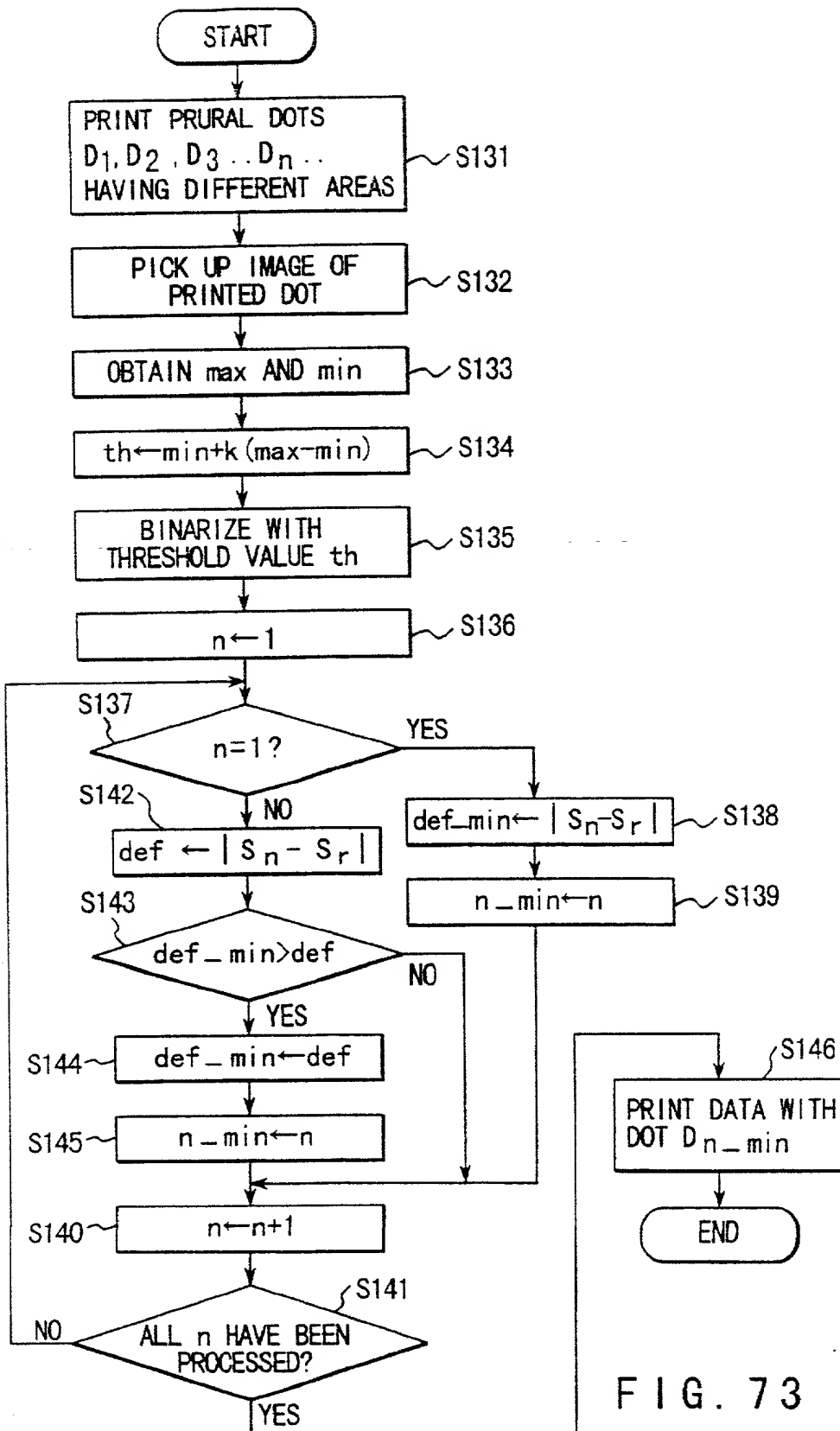


FIG. 73

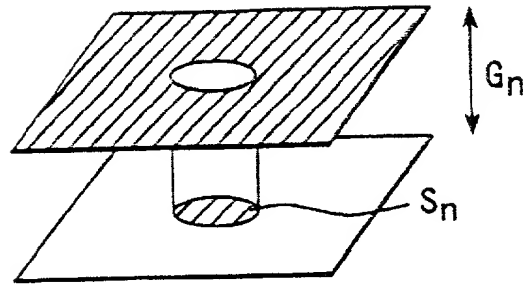


FIG. 75A

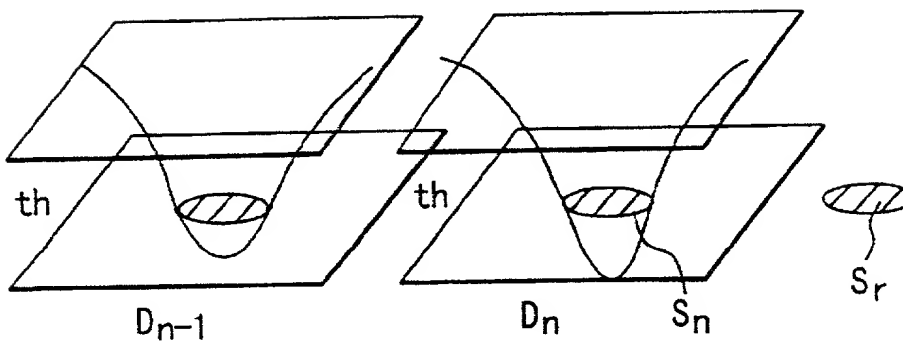
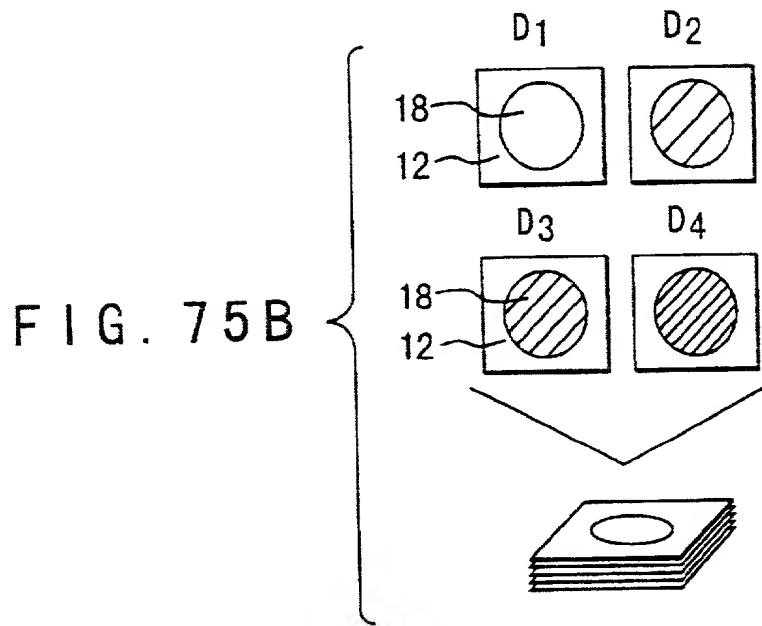
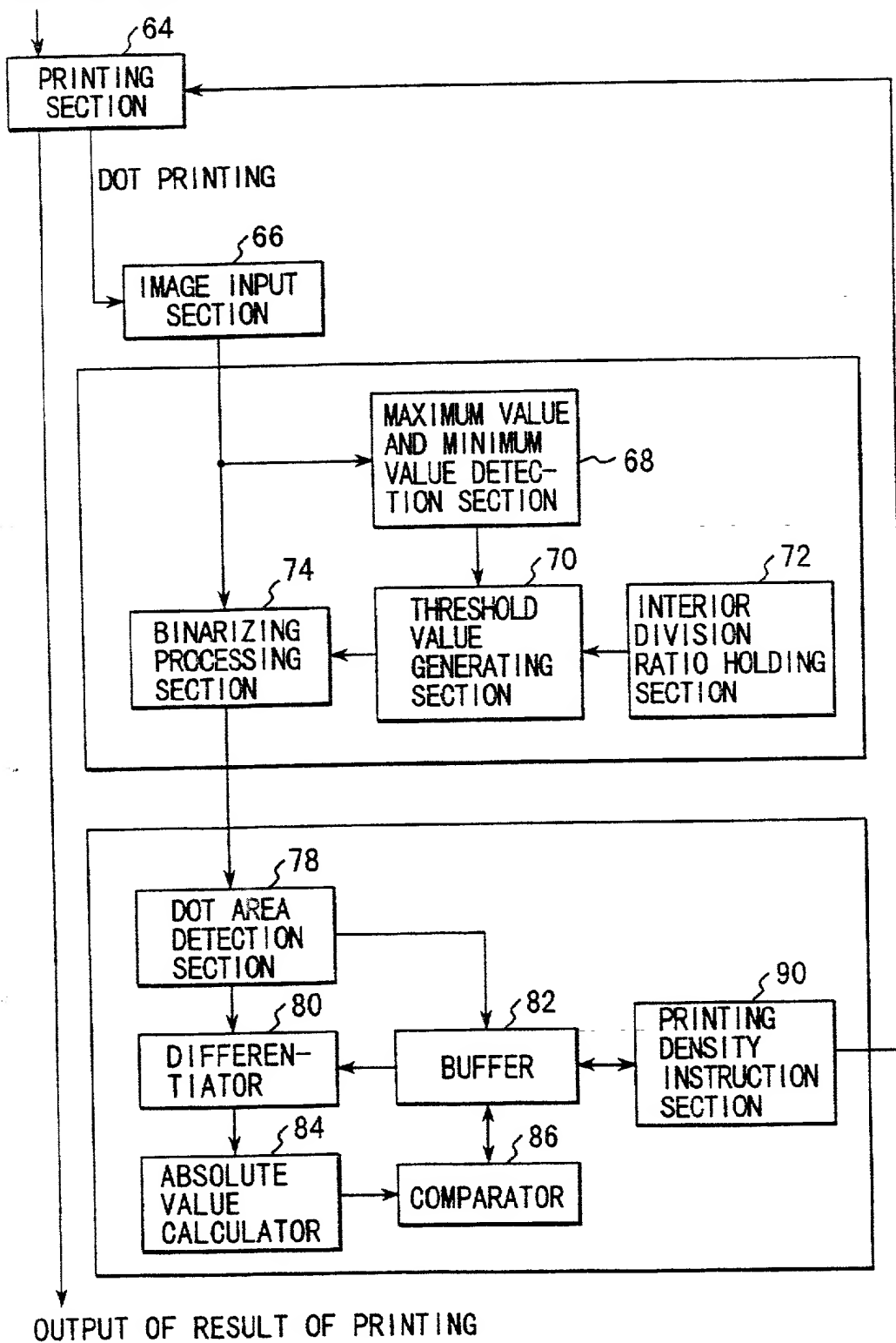


FIG. 75C

INPUT OF DATA TO BE PRINTED



OUTPUT OF RESULT OF PRINTING

FIG. 76

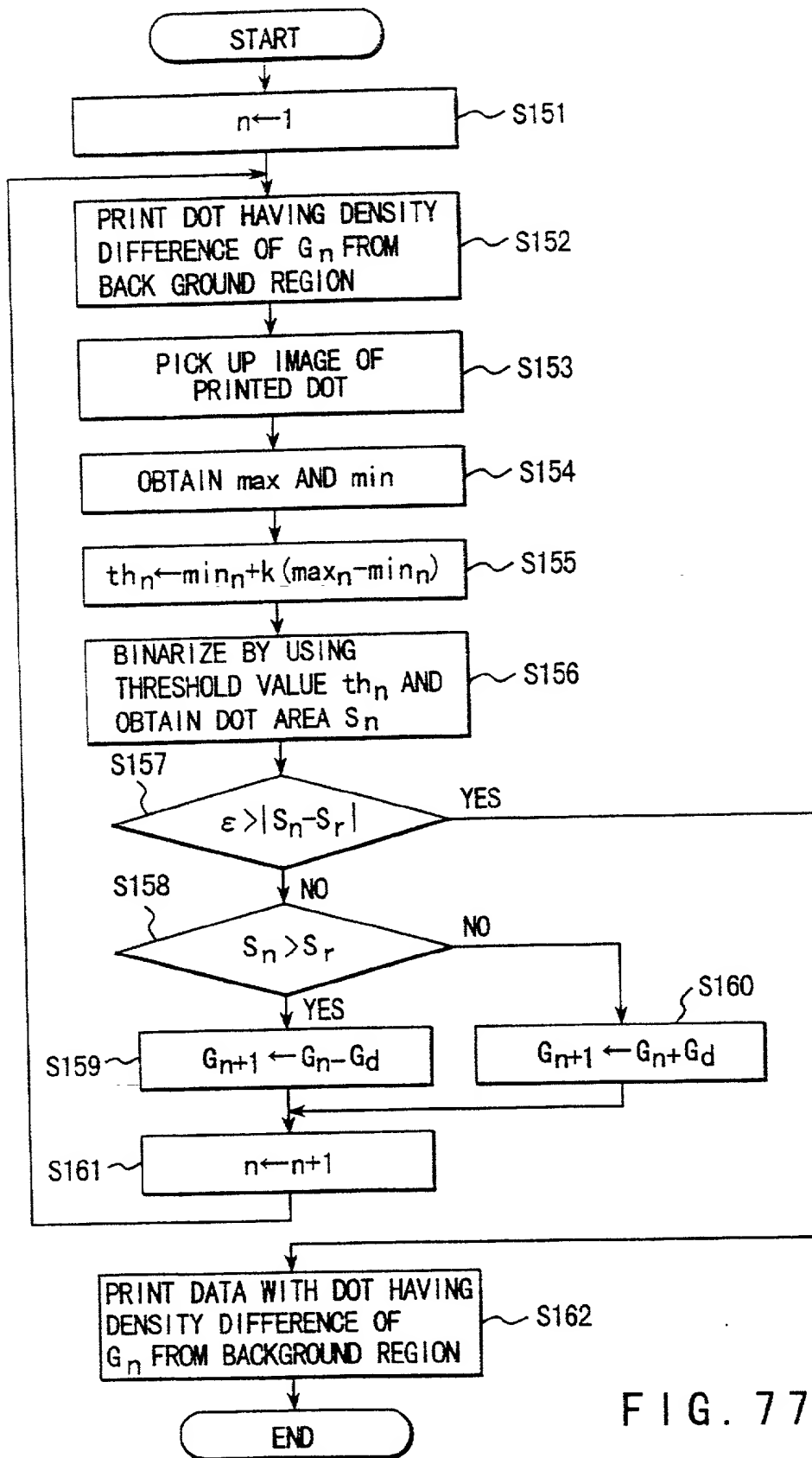
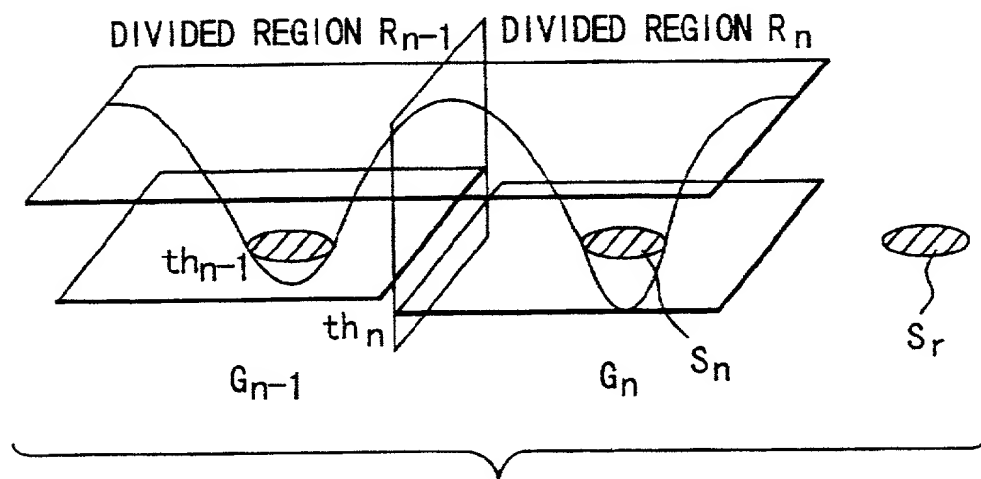
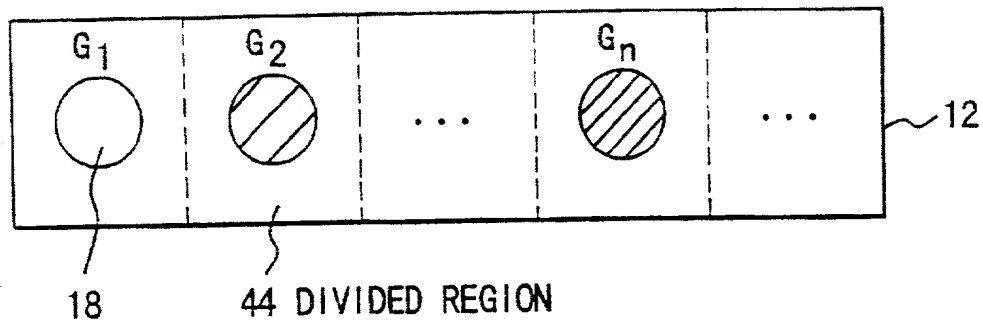


FIG. 77



INPUT OF DATA TO BE PRINTED

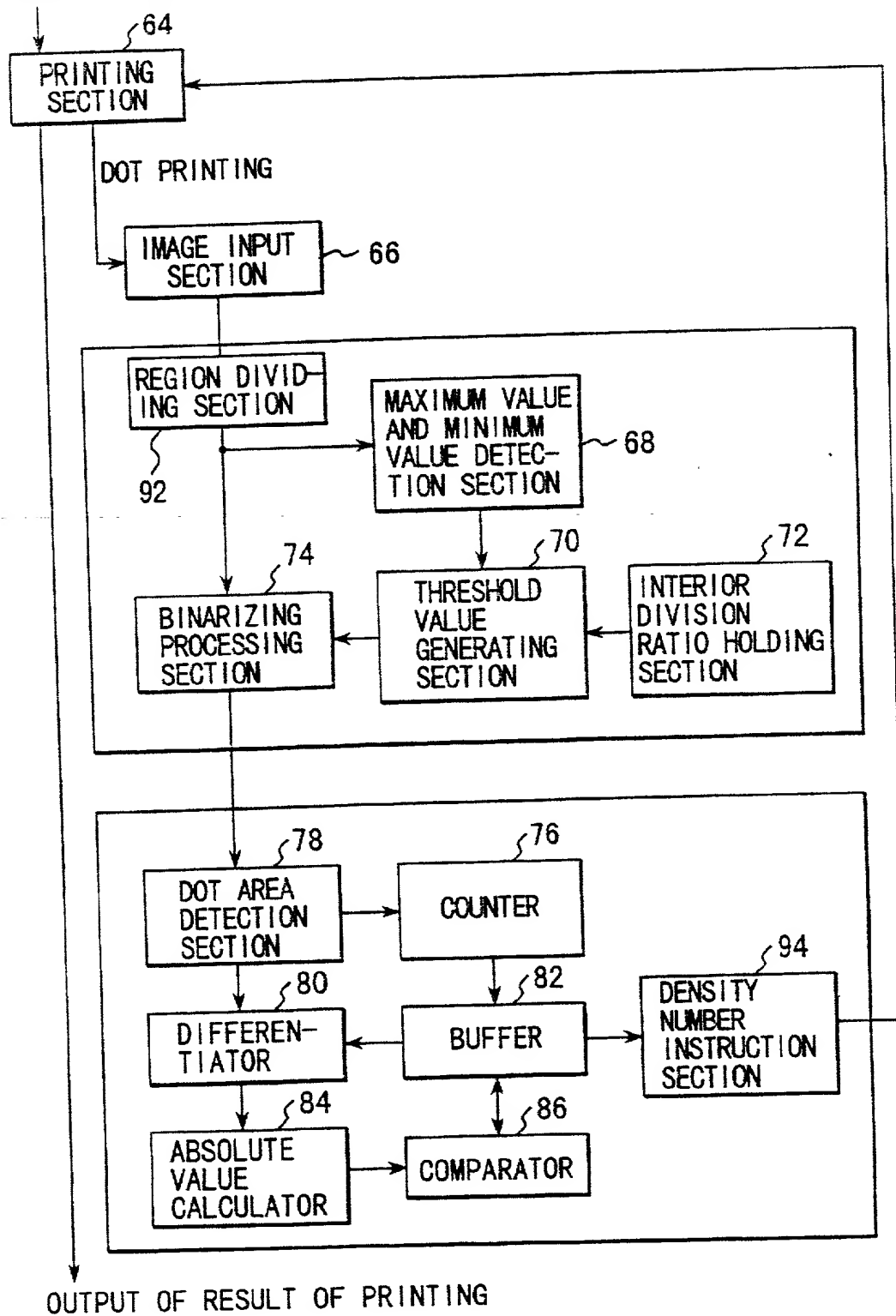


FIG. 79



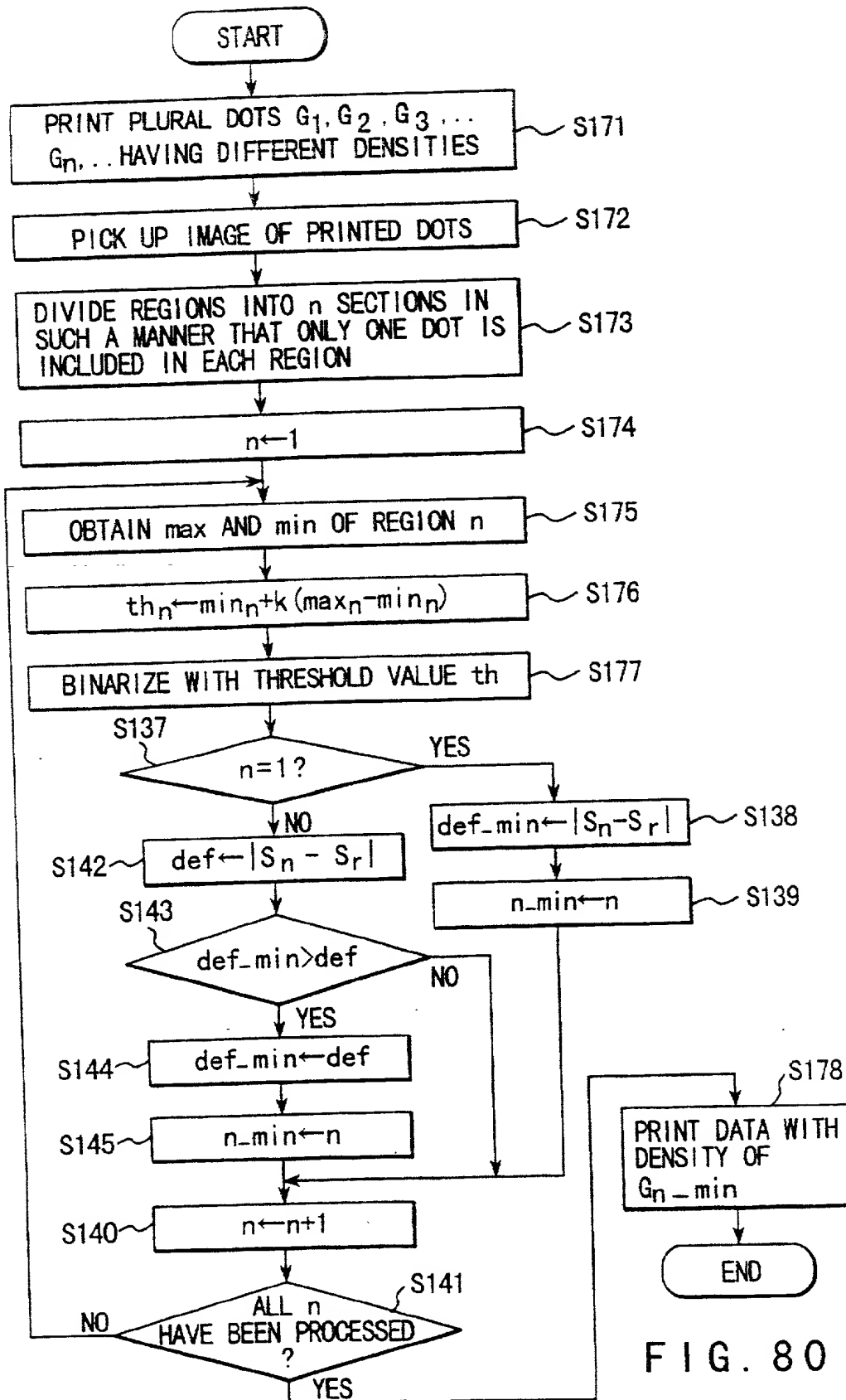


FIG. 80

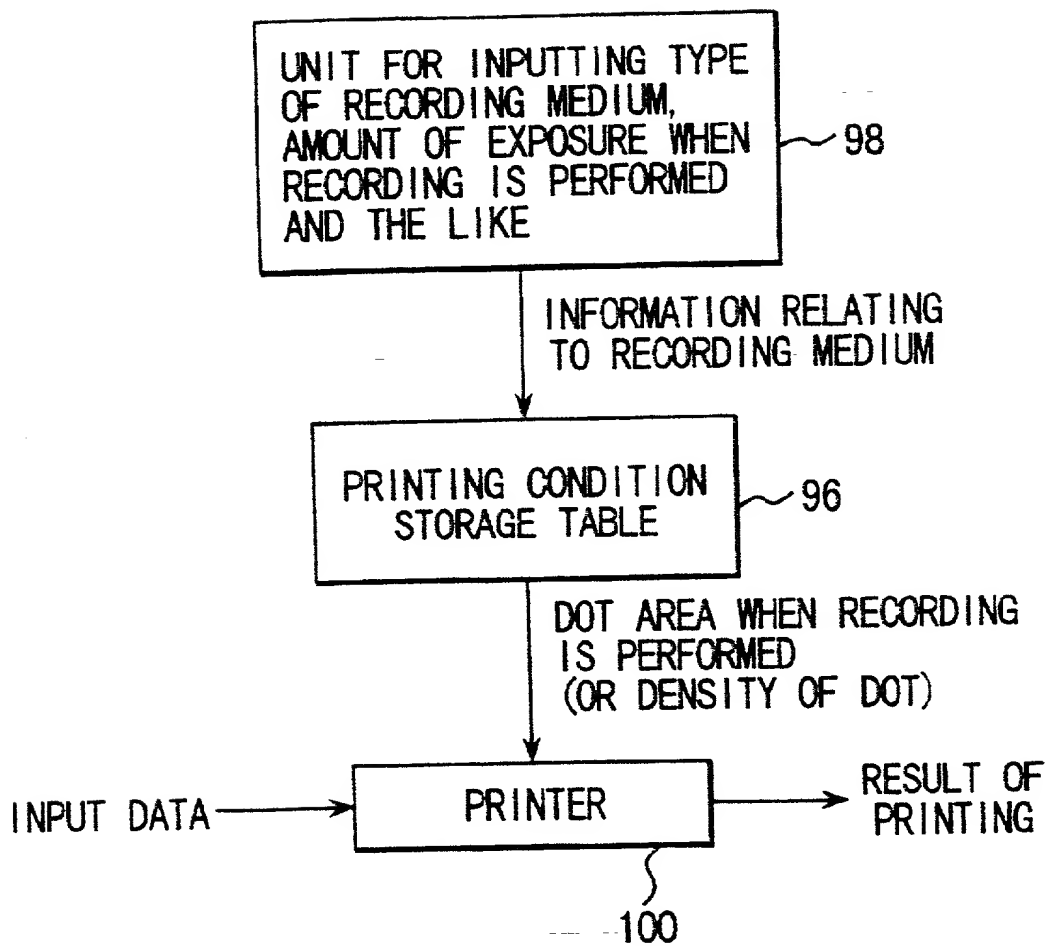


FIG. 81